AMATEUR RADIO

VOL. 51, NO. 9, SEPTEMBER 1983

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

New Repeater Earns Its Keep

Digi-Control for IC-720A

Five-Eighths Vertical for 6m

John Moyle from an Island

Spratly Island by a Survivor

WIA Video Tape Catalogue

emtronics

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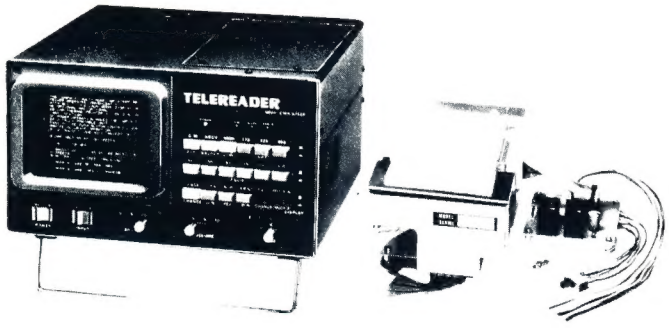
NEW TELEREADER CWR-675EP BRINGS NEW DIMENSIONS TO SHORT WAVE MONITORING

This new wonder machine is especially designed for the inquisitive shortwave listeners, amateurs, professional monitoring institutions, Government, Press, etc.
An entire new world is opened to those who are willing to explore it. Monitoring weather, press, ship traffic, embassies, interpol and many unusual services can prove to be fun! And for permanent record, just press the button and the inbuilt 40-column printer will do the rest for you. The CWR-675E and CWR-675EP are similar except that the CWR-675EP has the built-in printer.

CWR-675EP

The CWR-675EP is a compact electronic communications terminal designed for reception of Baudot and ASCII Radio Teleprinter (RTTY) signals as well as Morse code (CW) signals. The CWR-675EP includes built-in RTTY and Morse demodulators, video generation circuits, and 5″ diagonal measure video screen. The built-in video screen of the CWR-675EP eliminates the need for a separate video monitor in receive-only applications. Moreover, 40 columns thermal printer kit PK-675 can be added optionally to the unit. The CWR-675EP no longer needs any external unit. And, like the other TELEREADER terminals, the CWR-675EP runs on 12 VDC. This makes the CWR-675EP easily usable in mobile or portable locations where AC power is not available. The internal RTTY demodulator allows selection of all three standard shifts (170, 425, 850) for reception of "High Tones" (U.S. Standard) or "Low Tones" (IARU Standard). A parallel ASCII printer output is provided for connection to an external receive printer in addition to the optional built-in printer. TTL level (low voltage) input and output connections are provided in addition to the normal audio input from the receiver.



CWR-675EP (with printer) $1095.

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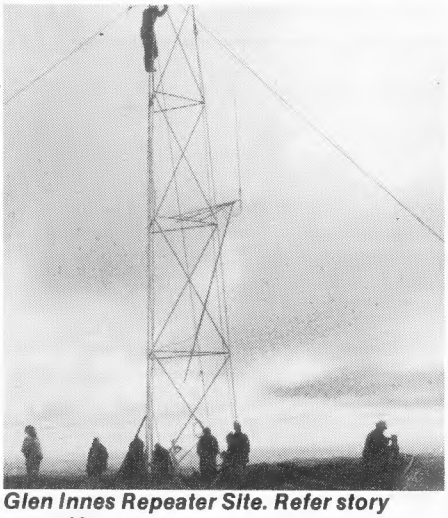
AMATEUR RADIO



Photograph by Jeanette Wiley VK2EJW

Glen Innes Repeater Site. Refer story page 12.

DEPARTMENTS

Advertisers Index 64
AMSAT Australia 48
Awards-*Amendments to Australian Awards* 31
Club Corner — *Gold Coast Amateur Radio Society* 53
Contest — *Rules of Novice, JLRS, ALARA, RSGB CW & Phone, Results RSGB RTTY* 50
Education Notes 53
Equipment Review — *ICOM IC-R70* 22
Five-Eighth Wave 56
Forward Bias 56
Hamads 63
Here's RTTY! — *RTTY Demodulator* 38
How's DX 34
International News — *Special Station & USA Callsign System* 37
Intruder Watch 40
Ionospheric Predictions 60
Letters to the Editor 58
Magazine Review 30
Main QSP — *Six Metres, Part Returned* 9
National EMC Advisory Service — ESD 46
Obituaries — *VK2QV, VK5AWJ, VK5HN & VK5BB* 62
Pounding Brass — *Getting Rid of the Garbage* 41
QSP ..... 31, 41 & 49
Silent Keys — *VK2AIS* 63
Spotlight on SWLing 30
Thumbnail Sketches — *Jim McDermott* 11
VHF UHF — *an expanding world* 42
VK2 Mini Bulletin 57
VK3 WIA Notes 54
VK4 WIA Notes 57
Who is this Amateur? 16
WICEN News 45

ARTICLES

August's Best Photographs 46
Exercise "SES Mitchell" *by Ted Gabriel VK4YG* 20
Family Radio *by XYL of Arthur Russell VK6NAR* 19
JM Field Day on an Island *by Dennis Hardie VK6KOZ* 26
JOTA —*Jamboree on the Air by Tom Delandre VK2PDT* 25
Murphy 47
New Repeater Earns its Keep *by Jeanette Wiley VK2EJW* 12
Open Letter *from WIA Videotape Co-ordinator* 47
Practical Digi Control Unit for the ICOM 720A *by Bob Young VK4BRY* ... 14
Radio Astraunaut in Space *by Roy Neal K6DUE* 11
Spratly Island *by Baldur Drobnica DJ6SI* 28
Two by Five Eighth Vertical for 6m *by Colin MacKinnon VK2DYM* 17
Videotape Catalogue 45

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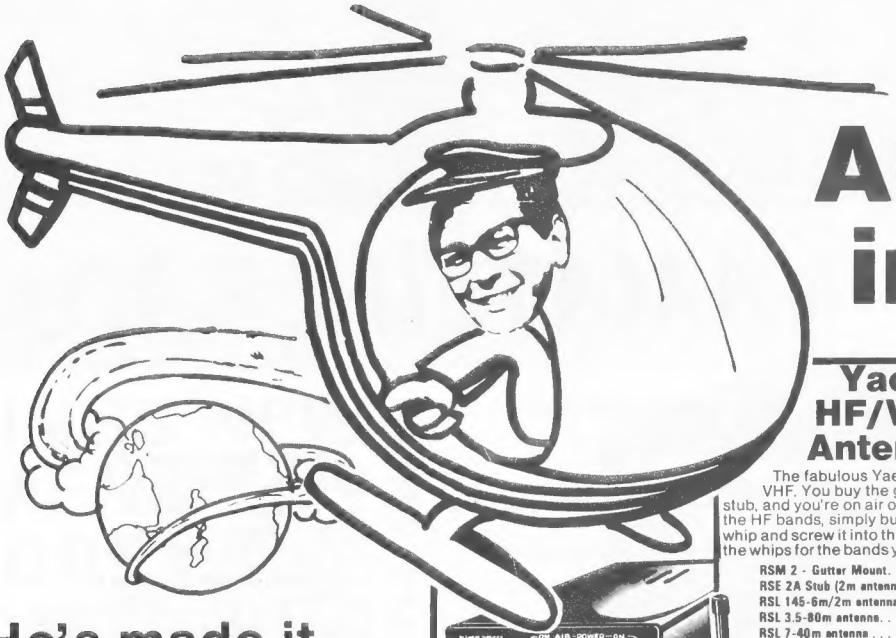
Amateur in Dick's



He's made it

Just as we went to press, Dick Smith, VK2DIK, completed the final leg of his solo round-the-world helicopter flight by landing at the Bell Helicopter factory at Fort Worth, Texas USA.

During this long and gruelling flight, Dick captured several world records and 'firsts' including:

- First solo helicopter flight around the world.
- First single engined helicopter crossing of the Atlantic.
- First helicopter flight around the world not escorted by a fixed wing aircraft.

When asked 'Why?' Dick said that he wanted to find out how the early aviators felt. And despite the modern Bell Jetranger helicopter having all modern safety & navigational aids possible, Dick at times was absolutely exhausted from the sheer effort required in flying through strange areas.

Part of the problem was the fact that flying any aircraft into a foreign country requires the same amount of work - whether it is a tiny helicopter or a massive Jumbo. But on a Jumbo the tasks are shared. Dick did it all alone. Then, of course, there was the fatigue of flying over vast tracks of ocean.

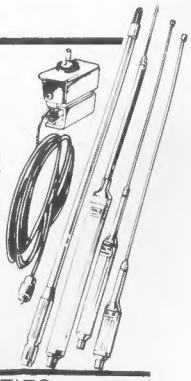
This is where amateur radio really came into its own.

"Every step of the way I was in contact with amateur operaters all over the world, I'd like to say a huge 'thank you' to all the amateurs who contacted me. And to those who didn't - but I knew were monitoring just in case, If ever it needed proving its worth to me, this flight was it. And yes, I will be QSLing all those contacted who send me cards. Just as soon as I get my feet back on the ground and have a chance to start answering the huge pile of mail that has built up since I left."

"Thank you amateurs."

Dick Smith

Yaesu Quality HF/VHF Mobile Antenna System



The fabulous Yaesu antenna system for HF and VHF. You buy the gutter mount base and 2 metre stub, and you're on air on 2m immediately. As you want the HF bands, simply buy that band resonator/antenna whip and screw it into the 2m stub. You only have to buy the whips for the bands you want. Go mobile with Yaesu.

RSM 2 - Gutter Mount	Cat D-4100	$29.95
RSE 2A Stub (2m antenna)	Cat D-4102	$12.95
RSL 145-6m/2m antenna	Cat D-4104	$32.50
RSL 3.5-80m antenna	Cat D-4110	$26.50
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Don't pay more! This amp does a better job and will cost you less. This is an all mode, high efficency linear amplifier for 2 meters. 30 watts output with only 3 watts in. 13.8V DC supply makes it perfect for mobile use. Dual time constant for SSB or FM operation. Reverse polarity protection too. Works great with our FT-290R and FT-208B or any 2M transceiver with up to 3 watts out. The best value in Australia! Cat D-2546

30 WATTS

ONLY $89.50

TEN MEMORIES & SCAN FACILITIES YAESU FT208R

COMPLETE WITH NICAD BATTERY & CHARGER

The FT-208 R transceiver brings a new flexibility to today's active 2m operator. An easy to read LCD display is coupled with a 4-bit microprocessor, bringing 10 memories and a scanning function. Because of LCD you get extra long battery life. Only with Yaesu can you get all the features at such an economical price. Cat D-2889

NOW $359

WAS ~~$368~~

PA3 Charger Unit

A DC-DC convertor that simply plugs into your cigarette lighter. Gives 10.8V main power plus a separete charging current for the Ni-Cads. Use with FT208 & FT290. Cat D-2899 **$32.50**

MICRO ELECTRONICS BREAKTHROUGH!

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2 METRE FM-FT230R

The FT-230R uses the latest breakthrough in microelectronics, providing you with unbelievable flexibility with simple operation and a full 25 watts output. Advanced micro-processor control gives you 5 or 10 KHz steps, full 144-148 coverage, 10 memories. 2 VFO's and built-in memory backup. The most incredible 2 metre FM around and you won't believe its small size! Cat D-2893

Genuine Yaesu Amateur Radio Mics

YD148 Dual Z Desk Mic

Smart styling-great performance and dual impedance versatility! East action P-T-T bar, with self-locking position for those long QSO's. Heavy base so it won't slip around on the desk impedance is set by a switch on the rear of the mic base. Cat C-1118

$49.95

YE7A Standard Model

The favourite, suits not only Yaesu but dozens of others as well. Cat C-1117 **$16.95**

YM38 Dual Z desk type with Scanning

Similar to above Yaesu desk microphone, also with switch for dual impedance. This one also has extra push buttons for use on scanning transceivers. May be used on other transceivers by using different pins. Cat C-1113

$55.00

FT ONE *

You've dreamed of owning a transceiver like this. Now your dreams can come true!

Compare the Yaesu FT-ONE with other multi-band transceivers, you'll find it offers much, much more - and at a lower price! If you want a transceiver that commands the bands, you won't do better than buying your Yaesu from Dick Smith Electronics, Australia's leading factory - approved Yaesu agent with full back-up and service facilities. Cat D-2852

INCREDIBLE VALUE $1995

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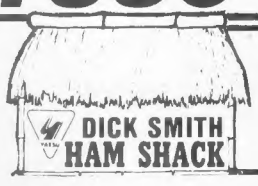
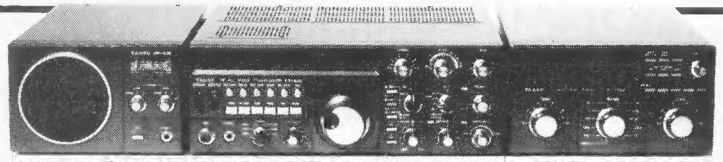


radio proves it's value round-the-world flight!



HI POWER YAESU HF TRANSCEIVER

SP102

Features a large 120mm hi fi speakers with selectable low and high-cut audio filters, allowing 12 possible response curves. Headphones can be connected to the SP-102. Filter allows audio tailoring for each bandwidth and mode of operation. Two input jacks provided. Cat D-2883

ONLY **$72.50**

FT102 *

A fantastic new, super high performance HF transceiver has arrived. The FT102 has all the amateur bands PLUS the new WARC bands. Special high voltage JFET RF amplifier provides exceptional dynamic range - well beyond 100dB. Adjustable Noise Blanker even works on the 'Woodpecker'. Three 6146B final tubes provide remarkable emission purity - plus big power 240W. Has IF Width and IF Shift and the best notch and audio peak filter you've ever heard. You must see this one to believe it! Cat D-2880

WAS ~~$1225~~

NOW **$1049**

*Optional FM Board. Cat D-2882 **$72.50**

FC102

This newly designed antenna tuner is ideally suited for use with the FT-102 station. Power handling capability of 1.2kW/ Bandswitch L-C pi-network will match a wide variety of antennas (including a single wire) to your transceiver. Cat D-2881

ONLY **$369**

INCREDIBLE VALUE ON ANTENNAS

V5JR 5 Band Vertical

If you're typical of most amateurs, you live in the suburbs where space is at a premium. You need an effective antenna, but there are usually objections to putting up a beam. You need our V5JR vertical. Virtually unnoticable in your backyard, you'll be able to pursue your hobby without worry! Cat D-4305

VALUE ONLY **$99.95**

Tri-band Beam

Mini-Multi's MSC33 offers top performance 10, 15 & 20 metres and its compact design makes it ideal where space is a limiting factor. Durable and lightweight, it is ideal for rooftop or lightweight tower installations. Featuring separate and matched HI-Q traps for each band. It feeds with 50ohm coax and delivers maximum front to back ratio. The MSC33 has a SWR of less than 1.5:1 at resonance. Cat D-4303

- Maximum element length ... 6.3 metres
- Boom Length ..... 3.8 metres
- Weight ..... 8 kilograms
- Rated at 600 watts PEP
- Average gain 8dB

AMAZING VALUE **$349**

The most up-to-date Communication radio in the world

FRG 7700/ SW

For the professional monitor or serious SWL! If you want the best, you want the Yaesu FRG 7700 SW. Complete shortwave coverage with ease of operation the others only dream about. Just look at these features:

- 2MHz -30MHz continous
- ALL Mode - including FM (great for working with converters!)
- Digital frequency readout, with digital clock.
- Timer for turning receiver on/off plus control of external equipment (such as tape recorder).

Ask for a copy of our brochure showing you what the FRG 7700 SW can do for you. Cat D-2841

FRG 7700 HF 150kHz - 30MHz version also available. Cat D-2840

ONLY **$539**

Optional Memory Unit

Gives you single button re-call of any of 12 chosen frequencies. Simple connection, instructions included. Cat D-2842 **$149.50**

VHF CONVERTER

There's a lot more to listening pleasure than just the HF bands! Listen in to the exciting world of VHF radio; all the services, amateurs etc, etc. 50-59, 118-130, 140-150kHz. Cat D-2844

$149.50

ANTENNA COUPLER

The FRG 7700 works with many types of antennas, but best with a low impedance one, This coupler ensures optimum performance always. Cat D-2843

$95.00

ACTIVE ANTENNA

Don't want to string up an antenna outside? Use the active antenna—powerfull preamplifier plus a whip antenna will pull in stations you didn't think possible Cat D-2845

$89.50

A thrifty HF Transceiver

FT-77 *

Cat D-2915

With all solid state 'no-tune' circuitry, the FT-77 is ideal for today's amateur on the move. With Yaesu's new 'CAD/CAM' * circuitry it represents the 'state of the art' in reliability, simplicity and economy.

- All amateur bands including WARC
- 12 volt operation (240V with optional supply)
- Nominal 100 watts output
- SSB & CW operation (FM optional)
- 0.3uV sensitivity (SSB & CW)

* Computer aided design, computer aided manufacture.

GREAT VALUE ONLY **$799**

FM Unit

Plug in PCB to give your FT-77 transmit and receive. Great with converters or for working W & K on 10m! Cat D-2918

ONLY **$44.95**

Marker Unit

Accurate marker to help you make sure you're not trespassing outside your band. An absolute must. Cat D-2919

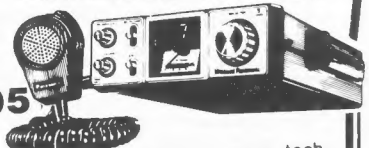
ONLY **$15.95**

SAVE $120 AROUND ON THIS

EXPERIMENTERS MOBILE RADIO

WAS ~~$160~~

NOW ONLY **$49.95**



Here's one for all the amateurs, servicemen, technicians etc. Famous National brand 9 channel 27 MHz CB. Ideal for conversion to 10 meters, use as spare parts, experiment with etc. We over-bought on this model and we MUST reduce stocks—our loss is your gain. Take advantage of our mistake and save a fortune! Cat D-2500

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You'll find a licensed amateur at each Shack.

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Introducing the hy-gain® EXPLORER 14

Remarkably Compact, High Performance Broadband Tribander with Quad-Band Option

New Para-Sleeve Design

The Explorer 14 is a new antenna design we call PARA-SLEEVE which uses an "open-sleeve" dipole optimized for maximum bandwidth and directivity. Here is the concept. A central dipole, driven directly by the transmission line, has a ½ wave resonance on the lowest operating frequency. Two shorter sleeve elements, tightly coupled to the central dipole, modify its impedance to create a ½ wave resonance to the highest operating frequency. This para-sleeve system is expanded by the addition of 15 meter traps and 20 meter element tips. A revolutionary new concept for HF tribanders. *So unique, we've applied for a patent.*

Broadband Performance

The Explorer 14 will load solid state tranceivers to maximum output with VSWR below 2:1, eliminating the need for an antenna tuner. You'll have edge to edge broadband performance on 20, 15 and 10 meters with gain and front-to-back ratio competitive to giant tribanders that cost twice as much or more. You'll be able to work stations you cannot even hear with a dipole antenna. And, the Explorer 14 handles maximum continuous legal power with a respectable safety margin.

Short Boom Save Space and Money

If your space or budget was too limited for a long boom tribander, chances are the Explorer 14 will fit both. The boom is only 14' (4.3 m) long and the turning radius requires only 17'3" (5.3 m). The compactness of the Explorer 14 reduces its overall weight and windload surface so you can mount it on a roof tripod, a mast or a tower. For Example, the Hy-Gain CD-45II rotator and HG52 tower are a perfect match for the Explorer 14. This saves you the cost of an extra heavy duty rotator and tower.

Superior Construction

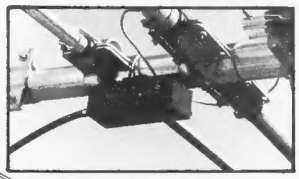
The Explorer 14 includes passivated stainless steel hardware and heavy gauge, pre-formed element and mast brackets. High grade 6063-T832 thick wall swaged aluminum tubing is used throughout. A BN86 balun is included and a new Beta Multi-Match provides DC ground to reduce lightning hazard and precipitation static. It's a rugged, easily assembled antenna that survives winds to 100 mph (160 km/h).

Quad Band Option

You can add a fourth band, either 30 meters or 40 meters to the Explorer 14 with the QK-710 kit. A kit that attaches to the central dipole and is easily adjusted for either 30 meters (WARC) or 40 meters at minimal extra cost.

Lew McCoy, W1ICP, is among the most authoritative writers in amateur radio. For over 30 years he served on the ARRL technical staff with his last position as assistant senior technical editor. Presently he is the technical writer for CQ magazine. Here is what he had to say about the Explorer 14:

"In my opinion, with Explorer 14, Hy-Gain produced a truly high gain, high performance antenna in a small package. The "para-sleeve" design provides the amateur a whole new ball game, particularly in the area of broadbanding. I was really surprised when I actually verified the gain, front-to-back and bandwidth during my recent visit to the Hy-Gain labs and antenna range in Lincoln, Nebraska. The Explorer 14 is a winner."



Feed point and balun

Specifications:

Electrical

Frequencies of operation:	20M	15M	10M
Under 2:1 VSWR (MHz)	14.0-14.35	21.0-21.45	28.0-29.7
Maximum F/B Radio (dB)	27	27	21
Maximum Gain (dB)	7.5	8.0	8.0
Maximum Power		Maximum Legal DC Ground	

Mechanical

Boom Length	14'1½" (4.3 m)
Turning Radius	17'3" (5.3 m)
Net Weight	43 lbs. (19.5 kg)
Wind Surface Area	7.5 sq. ft. (.69m²)

TELEX hy-gain

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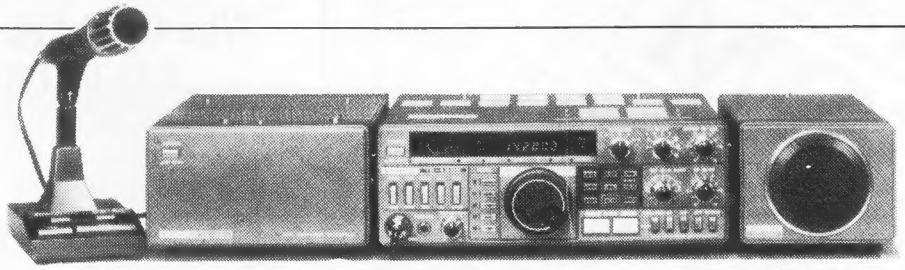

MC-60A PS-430 TS-430S SP-430

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IC-R70
COMMUNICATIONS
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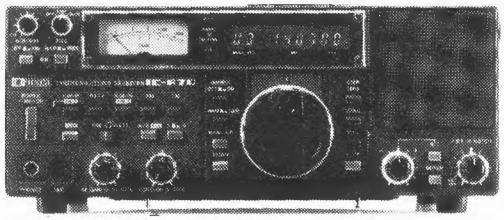

NEW IC-R70
Commercial Grade Communications Receiver

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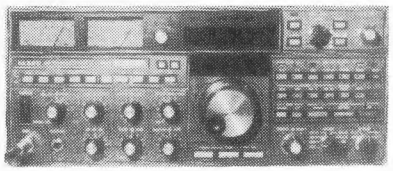
FT-980
COMPUTER
CONTROL
TRANSCEIVER



HF MICROPROCESSOR CONTROL
TRANSCEIVER FT-980

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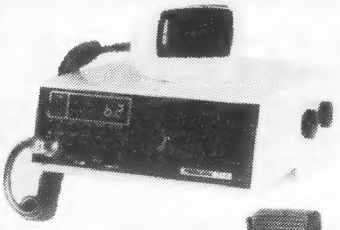

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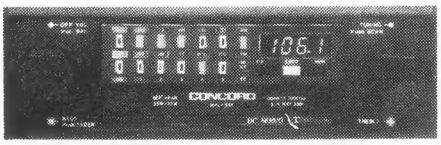
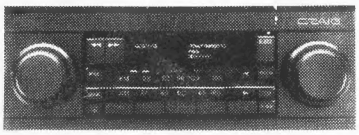


CRAIG
CAR STEREOS



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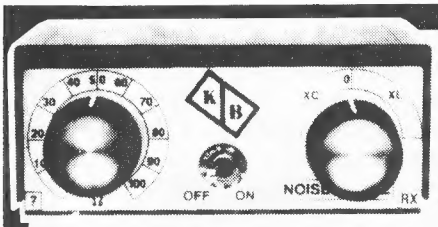
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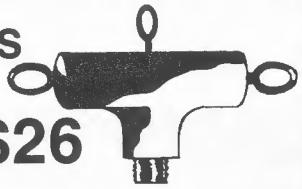
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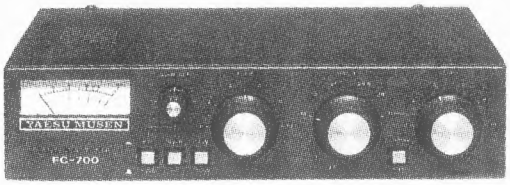
FT-77 HF TRANSCEIVER

Featuring efficient, all solid state, no tune circuitry, the FT-77 offers a nominal 100 watts of RF output on all amateur bands between 3.5 and 29.9 MHz, including the three new WARC bands. The new CAD/CAM* techniques plus the simple design of the FT-77 add up to one of the smallest, lightest HF transceivers ever, both in your hands, and on your wallet.

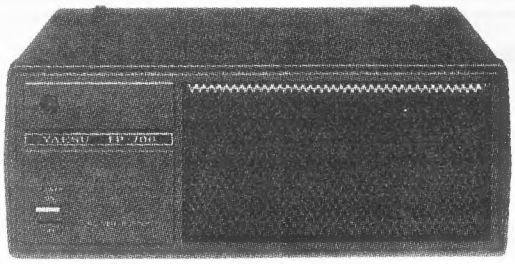
The front panel control layout and operation are actually simpler than some VHF FM transceivers, with only the essential operating controls. Nevertheless, all of the essential modern operating features for HF SSB and CW are included, along with extras such as dual selectable noise blanker



FC-700 ANTENNA TUNER

pulse widths (designed to blank the woodpecker or common impulse noise), full SWR metering, and capabilities for an optional internal fixed-frequency channel crystal, narrow CW filter and FM Unit.

Computer-aided design of the circuit boards in the FT-77 ensures the most efficient component layout possible in the smallest space, while automatic parts insertion and soldering greatly diminish the chance of human error. Reliability and quality



FP-700 AC POWER SUPPLY

control are thus improved and simplified beyond the degree previously attainable in amateur equipment.

The extremely compact size and simple control layout make the FT-77 ideal for mobile operation, or as a complete base station with the optional FP-700 AC Power Supply, FV-700DM Digital Scanning VFO and Memory System, FTV-700 V/UHF Transverter and the FC-700 Antenna Tuner.

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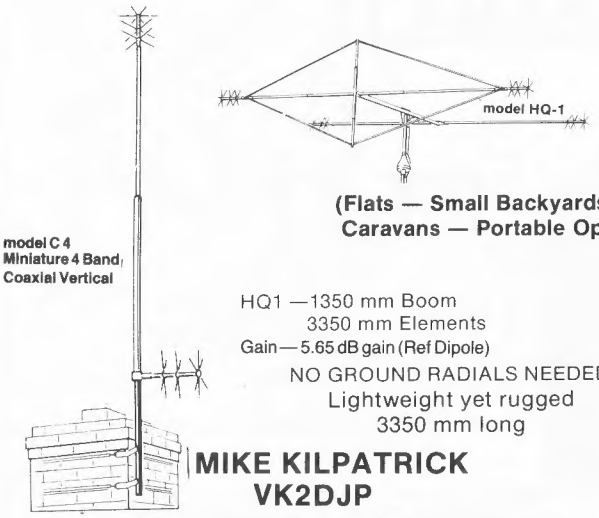

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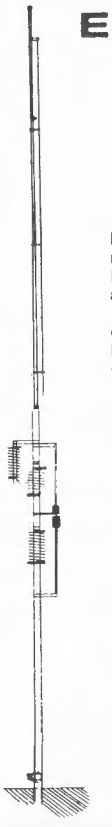

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- ★ Retrofit capability for 18 and 24 MHz bands.
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SIX METRES, PART RETURNED

Last month, we published a special insert detailing the Department of Communication's advice on approval to operate in the six metre segment, 50-50.150 MHz.

This was as a result of negotiations which have been conducted for over five years, for a return of the band, 50-52 MHz. In the very early stages, we were advised that as the band 50-52 MHz was now allocated to the Broadcasting Service, when television Channel O commenced operation, we would have little, if any chance of regaining any portion of that band whatsoever.

We were able to demonstrate to the Department, that successful overseas experiments were being conducted in the lower portions of six metres, whereas on many occasions, propagation was not possible at 52 MHz. Such being the peculiarities of this band.

Over many years, as technology improves, the community at large demands more radio spectrum facilities. Demands on the limited resource of practical radio spectrum are increasing daily.

Mobile radio telephone communications ability is a specific requirement. It seems many small businesses with two or three vehicles on the road, want to be able to communicate instantly with their respresentatives. Gone are the days when a commercial business can expect to receive a private channel for its exclusive use. Many such businesses must share a specific channel, and there can be no guarantee of privacy of communications.

At each WARC conference, frequencies are shuffled around to suit the requirements of most services. Every service seems to want more, but the resources are limited.

Commercialisation of the radio spectrum is big business. There is much income to be made by a government in the licencing of various frequencies. Television and Broadcasting stations pay dearly for the privilege of spectrum usage, and it is no wonder that objections are raised when the Amateur Service requests an extension to its allocations.

We have been granted, albeit a limited access, portion of a band initially removed from the Amateur Service for commercial purposes. We have overcome what may have been thought the impossible. In this respect, we must now justify our actions, and prove to the authorities and outside commercial interests, that we indeed are a respectable service. Specific restrictions have been placed on amateur usage of the new allocation, and this is basically that *no* interference is to be caused to any Channel O transmission.

Further, except for Western Australia, the External Territories and Antarctica, operation is restricted to, outside of Channel O transmission hours.

We are the secondary service in this band allocation, the primary service, Broadcasting, will be given the protection it demands from interference of secondary station transmissions.

We expect a review of this allocation to be made in approx twelve months. Therefore, it is important that users of this new segment should ensure that accurate logs are kept, and the restrictions of operating times are strictly adhered to.

We should also strive to ensure we don't try to 'bend the rules', and accept the restrictions placed on us.

Failure to do so will result in permanent loss of this band allocation.

I trust we can live up to what is expected of us.

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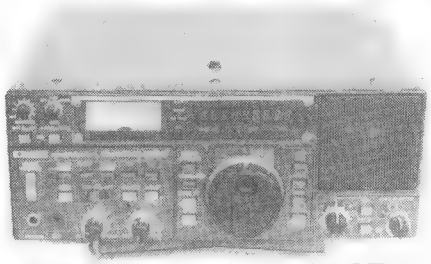


HF GENERAL COVERAGE RECEIVER

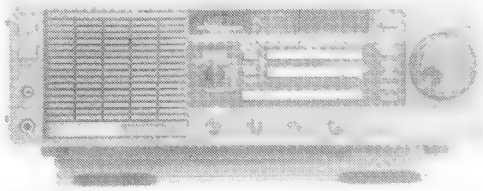
Listen to the world of HF with the R70, a 100kHz to 30MHz commercial grade receiver designed by ICOM Incorporated, the leader in advanced receiver design. Built from knowledge gained by designing receivers for commercial, marine and amateur use, the R70 surpasses other receivers on the market . . . even receivers costing more than twice as much.

Utilizing ICOM's DFM Direct Feed Mixer , the R70 is a receiver which in normal usage is virtually immune to intermodulation distortion or cross modulation, yet still maintains superior sensitivity. Whether you are a Short Wave Listener, Amateur Radio Operator, Maritime Operator or Commercial User, the R70 provides the features you need.

The R70 is an ideal general coverage receiver to complement any amateur shack. Use it with your existing transmitter or transceiver to provide dual receiver capability.

The R70's built-in monitor system lets you listen to your own transmitted audio and a mute input automatically protects the R70's receiver from your signal.

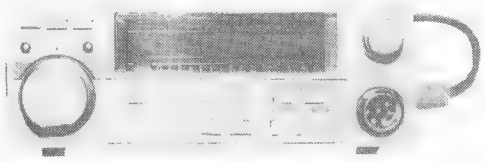
An option for FM allows listening to the 10 metre FM activity.



The TS-430S combines the ultimate in compact styling with its counterparts in advanced circuit design and performance. An all solid-state SSB, CW and AM transceiver, with FM optional, covering the 160-10 metre Amateur bands including the new WARC bands, this remarkable radio also incorporates a 150 kHz-30 MHz general coverage receiver, having an extra wide dynamic range. Key features include dual digital VFO's, eight memory channels, memory scan.

The TR-2500 is a compact, designed for tomorrow, 2 meter FM handheld transceiver, incorporating the latest in electronic technology, including LCD readout, 10 channel memory with improved memory backup, memory scan, programmable automatic band scan, keyboard channel selection, and improved flexibility with a variety of new accessories. Big in features, big in performances, the TR-2500 will surprise you with its small size.

TW 4000A – 70cm/2m DUO-BANDER



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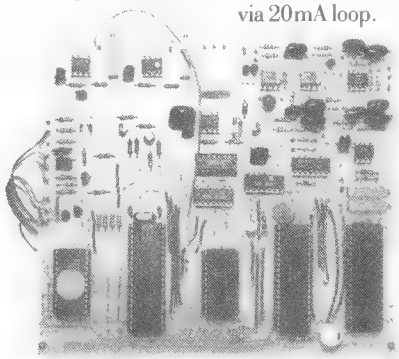

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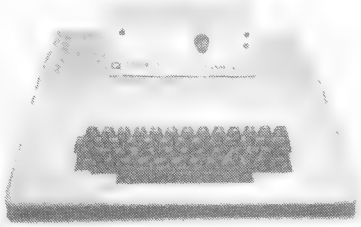

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WORLD COMMUNICATIONS YEAR

RADIO ASTRONAUT IN SPACE

Roy Neal K6DUE
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So you want to work an astronaut in space?

Well, the timetable to launch is growing short for Dr Owen Garriott, W5LFL. He's scheduled to go into orbit on 30 September, in the Columbia, and the Flight Directors and engineers are polishing the fine details on a flight plan that calls for up to an hour a day of amateur operating by Owen on 2 metres.

During the mission, he will sign "W5LFL from Columbia", using a transceiver specially built for the flight. Five manufacturers volunteered to provide the equipment. At this writing, NASA engineers at the Johnson Space Centre in Houston are running evaluation tests to choose the entry best suited to the flight . . . "STS-9", to give it the official NASA designation.

The radio will be powered with alkaline batteries and will run 5 watts, FM modulated. Transmissions will be in the range 145.51-145.77 MHz and Garriott will listen between 144.910 and 145.470 MHz in 20 kHz increments.

Exact times and frequencies are still being worked out.

The mission is scheduled to last nine days but don't look for Owen until day three. It will take that long to get the Columbia bedded down and the European built Space Lab 1 working properly. The Space Lab is the prime payload on this flight, no matter how important we amateurs like to consider *our* payload.

The radio will be operated from the aft flight deck. Dr Garriott will place his split ring antenna in a window that overlooks the Space Lab. This works because the payload bay is operated with the lab facing toward the earth and that puts the amateur antenna into line of sight perspective during most of the flight.

W5LFL has been authorised by NASA to operate up to an hour a day. The astronauts work 12-hours-on and 12-hours-off, so Owen plans to use the time on either end of his 8-hour sleep periods for 2 metres. (Co-sponsors of the project are AMSAT and ARRL).

The flight directorate has mapped out the times when his orbital track will put the ship over the places where amateurs are concentrated. The flight path, at an inclination of 57 degrees, goes over most of the heavily populated areas on earth.

Flying at an altitude of about 200 statute miles, Garriott will have line of sight to a distance of about a thousand miles. His speed will be around 17 thousand miles an hour. This means he will be on-station up to a maximum of 8 minutes at any given point, less than that most of the time.

Based on results from OSCAR, however, AMSAT tells us we can expect to receive full quieting signals, even on a hand-held radio with a rubber duckie for an antenna, while the ship is passing overhead. On transmit it will take at least ten watts and a gain antenna, however, to stand a fighting chance of getting through and *being heard by W5LFL.*

On the air, Owen plans to transmit on even minutes and listen on odd minutes during the times selected for operation. He will identify his location and call areas for which he will stand by. For the most part, his transmissions will be spent acknowledging the calls that he has been able to log.

For us earth-bound mortals, it is recommended that you *transmit only your call during the odd minutes.*

If you call and are not acknowledged during the flight, don't give up hope. Garriott will tape record all amateur activity and the tapes will be used as a log, after the fact, for QSLs. But you may have to settle for an SWL QSL!

The station will only be able to go on the air at selected times, primarily dictated by the astronaut schedule and the physical location of the ship as its orbit criss-crosses the globe, 15 to 20 orbits at most are expected to be effective. Even on a good pass, only a few dozen stations can be worked . . . but even ten watt transmitters have a chance of getting through, according to the AMSAT and NASA engineers.

If, as a group, we do a good job of operating on this flight, hopefully there will be many more similar operations in the future. Tony England, W0ORE, for example, another astronaut, hopes to take equipment with him when he flies in 1985. So it well behoves the amateur fraternity to put its best operating foot forward with an eye toward the future. Help police the action in your area.

You'll need separate transmit and receive capability because W5LFL does not plan to operate the normal 600 kHz split. A hand-held will do well on receive. At least ten watts and a simple gain antenna should be used on transmit. Unless you have the experience of tracking satelittes, it is recommended to stay with a simple antenna . . . one that is mounted high enough to see the horizon. Check your antenna handbooks for designs.

Contributed by: Jim McLeod, VK2VLQ

THUMBNAIL SKETCHES

Peter Brown VK4PJ
VK4 Amateur Historian
16 Bede Street, Balmoral, Qld 4171

J W McDERMOTT. EX VK4JM. 1930.

Jim, of 1913 vintage, started his radio career at Glen Eagles, near Beaudesert, with crystals and batteries. He later moved to Rosemount near Nambour where he built a 240 VAC power supply using a motor cycle engine, single cylinder, to drive the alternator until reticulated AC became available and he moved to Nambour.

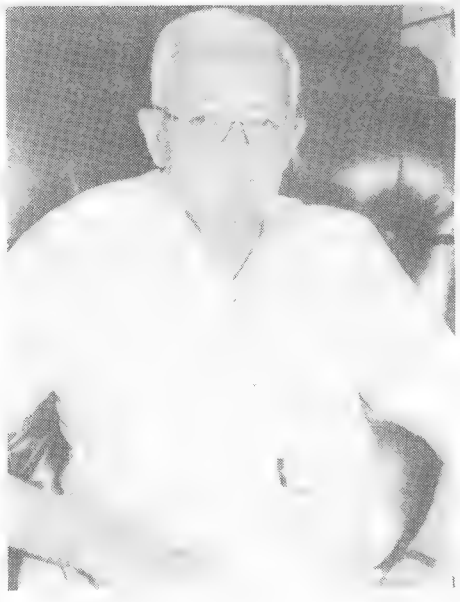
A licensed electrician, Jim became prominent in the district as a radio serviceman in which calling he is still active.

In his younger days he operated the cinema in Maroochydore, using incandescent lamps, assisted by Arthur VK4AW.

Jim's father and brother also obtained amateur radio licences and they were all also keen sailors, building their own boats. Wartime service as a WO, AEME, included security work and lecturing on advanced electronics.

Jim is a member of the Institute of Radio and Electronic Engineers London and a registered Technical Engineer with the Council of Engineers London.

AR



NEW REPEATER EARNS ITS KEEP

Jeanette Wiley, VK2EJW
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GLEN INNES CHANNEL 7 REPEATER

The Glen Innes repeater, VK2RNE, operating on channel 7, repeater input 146.350 MHz and repeater output 146.950 MHz, came into operation on Saturday 9th July 1983. It had been in the planning stages since 1977 when the North West Amateur Radio Group was formed to provide repeater coverage in Region 2, NSW.

VK2RAB, channel 5 Gunnedah and VK2RMI, channel 7 Moree were both established by this group at sites where other installations were already present. (County Council and Telecom). Applications to establish the repeater at a similar site near Glen Innes were refused so the search began for a suitable site in the area. In 1981 a site was found and the club voted to go ahead with the project.

The present location, some 30 km south-west of Glen Innes and 1503 metres above sea level was tested by a party using an IC22S and a "Slim Jim" at six metres. Stations from the coast and from Narrabri, Tamworth, Armidale, Inverell, Moree and Glen Innes could all access the site without much difficulty.

The NWARG holds the licence for the repeater and supplied the transmitter and receiver sections, the cavity filters and the aerials. The Glen Innes and District Amateur Radio Club was made responsible for the site, repeater accommodation, tower, power supply, control box, solar panel and labour — a huge task considering club membership is currently only twenty one.

The repeater itself is a converted STC MTR 10-151B with ten watts output. The transmit and receive sections were separated by Reg, VK2ATS. Richard, VK2BYV built the control box (the ident board, timing circuitry etc).

A Glen Innes resident at the time, who has since gone home to England, Nick Butt, is a solar power genius. He worked on the solar power supply system to make it as efficient as possible. It is his personal design and he built it himself. The club could not afford to purchase it from him with money, but some club members provided labour on his farm instead.

The repeater is exclusively solar powered by a Solarex 2.1 amp panel charging two 6 volt batteries in series, supplying 12 volts 110 amp hours. When no signal is detected by the repeater for a few minutes everything but the receiver shuts down, so the total standby current consumption is only 110 mA. When a signal is detected the transmitter and control sections come back on and the repeater idents. The time out period is approximately 4 mins 30 secs.

After six months of tests the WIA repeater committee suggested swapping crystals with VK2RMI Moree. With Coffs Harbour being channel 1 it was felt that there could be interference between the two repeaters. So Moree became channel 1 and Glen Innes was licenced for channel 7 operation.

The Tower enroute up the Mountain.

Some idea of the difficulties encountered can be imagined. This was just a bare mountain top; no electricity, no running water and access by four wheel-drive vehicles only. It is a very bleak site — cold and windy. Most working bees took place in temperatures barely above 0° C and the day the repeater was installed the ground had snow on it all day.

For support the 21.5 m tower, donated by Ivan VK2BIO, has three concrete footings with 1.8 m rock bolts. Because the site experiences extreme winds three guy wires were added later for extra peace of mind.

The Glen Innes Rescue Squad provided equipment and know-how to move the tower from Glen Innes, where it had been sanded and painted by members, to the site. This was not an easy exercise. Glen Innes, drought striken for four years, had had millimetres of rain and the track up the mountain was very slippery. Many times members had to lift the back end of the tower back onto the track after it had slipped off. All were very relieved and satisfied to see the tower vertical, complete with lightning arrestor and aerials mounted. The aerials, half wave collinears with approximately 6 dBi gain are mounted

Rigging the Antennas.

Up she goes.

The Crew that raised the Tower.

with the transmit aerial at 6 m and the receive aerial at 15 m. Hopefully this is enough separation to prevent desensing problems. Graeme, VK2EBU had the honour of being first man up the tower to release the ropes.

The makings of a Repeater Shack.

The group were held up several times by wet weather, but over several weekends a concrete slab was put down and a shack built to house the repeater equipment.

Finally came the big day. On Saturday 9th July, the repeater was installed and there was plenty of excitement as all heard the first ident. For the rest of Saturday and Sunday the repeater had plenty of use! Most distant signals into the repeater so far have been Dalby in Queensland and Newcastle.

The local amateurs hope that the repeater will be useful, not only for socialising on air, but also for emergency situations. It should give good coverage of the nearby Gibralter Range National Park in case WICEN should be called out to assist in a search, as well as assisting liaison throughout Region 2.

A feature of this whole project is the excellent co-operation and assistance received from the Lands Department, Severn Shire Council, Glen Innes SES and Glen Innes Rescue Squad. There has also been support in the form of materials and assistance from local businessmen. It is amazing how little this project has cost the club but finances are now at rock bottom and the project couldn't have managed without their help.

It is difficult to name everyone who has helped, but here is a list and apologies if anyone has been omitted: *Richard VK2BYV, Reg VK2ATS, Mike VK2NBT, Peter VK2KDA, Russ VK2ERS, Graeme VK2EBU, Ivan VK2BIO, Tony VK2BGQ, Ian VK2EIJ, Lyn VK2BSF, Dave VK2ZDY, Phil VK2XPB, Dallas VK2ECC, Angus VK2PNV, Bill VK2NXT, Rob and Mark Dunk, Bryan Burgess, Brian Donnelly, Mike Digby, Geoff Kiehne, Malcolm Lane, Bob McLeod, Peter and Graham Fletcher, Bill and Brendan Byrne, Nick Butt, Russ Davies, Wayne McCarthy, Richard Tucker and Jeff Beness.*

Solar panel mounted on the roof.

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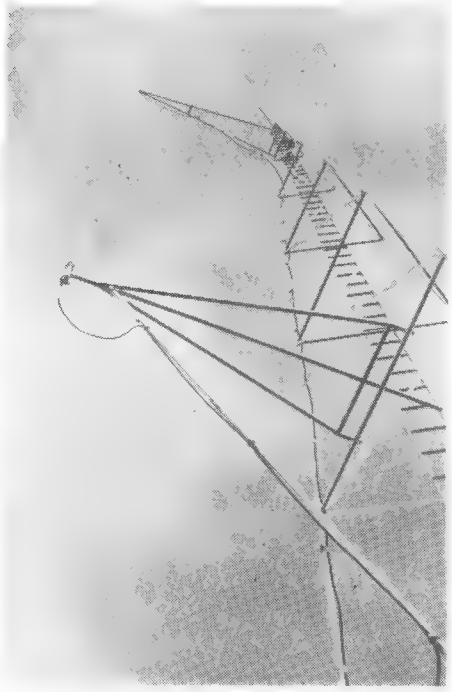
RR

If anyone is interested in more information about the repeater please write to the club via PO Box 26 Glen Innes.



The 21.5 metre Tower.

Postscript: A few hours after completing this article it was learnt that the repeater has indeed earned its keep already. Phil VK2XPB was travelling near Inverell and came across a car accident. Three chaps were very badly injured. Phil called "Mayday" on channel 7 and Reg VK2ATS dropped everything to answer. Ambulances were despatched immediately and the three were taken to hospital without delay.

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Photographs supplied by Jeanette Wiley VK2EJW

A PRACTICAL DIGITAL CONTROL UNIT FOR THE ICOM720A

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The unit to be described is built around the keyboard of a discarded desk calculator and uses only seven digital integrated circuits. When connected to the IC720A via the accessory socket it interfaces with the transceiver's internal central processing unit (CPU) and permits immediate selection of operating mode, VFO A or B and frequency or alternatively, the variation of any one of these operating parameters on its own. The controller also incorporates the facility to override the housekeeping circuitry of the CPU which includes the inbuilt inhibit of the transmit mode for frequencies outside the amateur bands, thus making the IC720A a true general coverage transceiver.*

The process of encoding the internal CPU by means of the controller is as simple as entering a ten digit number on a calculator. Having the control unit connected to the IC720A does not in any way interfere with normal manual control of the set if desired. Description of the keyboard controller is somewhat simplified if it is considered in two parts. ie the keyboard binary code generator and the logic board.

THE KEYPAD LOGIC GENERATOR

This part of the control unit is built quite simply by wiring the appropriate keys of a discarded calculator keyboard to facilitate the generation of the binary codes corresponding to the numerals 0 to 9, the address code specific to the CPU of the ICOM transceiver, the two VFOs and the five available operating modes, ie upper side band, lower side band, AM, CW, and RTTY. In addition a key is required to activate the RT control line and a switch to enable or disable the RC line as required (the RT and RC controls will be dealt with later).

Data is encoded in 8421 BCD. This data is generated by using the various keys of the calculator keyboard to ground the cathodes of discrete diodes in an array connected to four data lines denoted D8, D4, D2 and D1. The two examples shown in the circuit below will, I am sure, preclude the need for further explanation. The type of diode used is not critical. I used 1N914s because they were the cheapest available.

The IC720A handbook does not provide any coding information. It does, however, identify the access points of the accessory socket although the method of identification gives very little indication of the function of the various lines. Those of relevance are as follows:

4 Data Bus Lines identified as DB8 PIN 24
DB4 PIN 23
DB2 PIN 22
DB1 PIN 21

4 Data control lines
Data Bus Control Input PIN 16
RC Control Input PIN 18
$\overline{RT}$ Signal Line PIN 20
$\overline{DV}$ Data Valid Line PIN 19
+13.8V (Switched) PIN 2
Ground PIN 8

As was pointed out above the handbook does not furnish any encoding data and at this stage I would like to express my gratitude to Garner Annett VK3NZZ for his article in ARA Vol 5 No 3 in which he describes in detail, not only the relevant data codes but also the message format and control level data for the CPU. The encoding table below furnishes the data necessary to wire up the diode array for the keyboard.

DATA UNIT ON KEYPAD

	DB8	DB4	DB2	DB1
Address Key	1	1	1	0
USB Key	0	0	0	0
LSB Key	1	0	1	1
AM Key	1	0	0	0
CW Key	0	1	1	0
RTTY Key	1	1	0	0
VFO A Key	1	0	1	0
VFO B Key	1	0	1	1
0 Key	0	0	0	0
1 Key	0	0	0	1
2 Key	0	0	1	0
3 Key	0	0	1	1
4 Key	0	1	0	0
5 Key	0	1	0	1
6 Key	0	1	1	0
7 Key	0	1	1	1
8 Key	1	0	0	0
9 Key	1	0	0	1

To the astute observer it will be evident that in a number of instances the same binary code is used for two different entities, for example 0000 denotes numeral 0 and also Upper Side Band. The encoding sequence takes care of this anomaly.

THE LOGIC BOARD

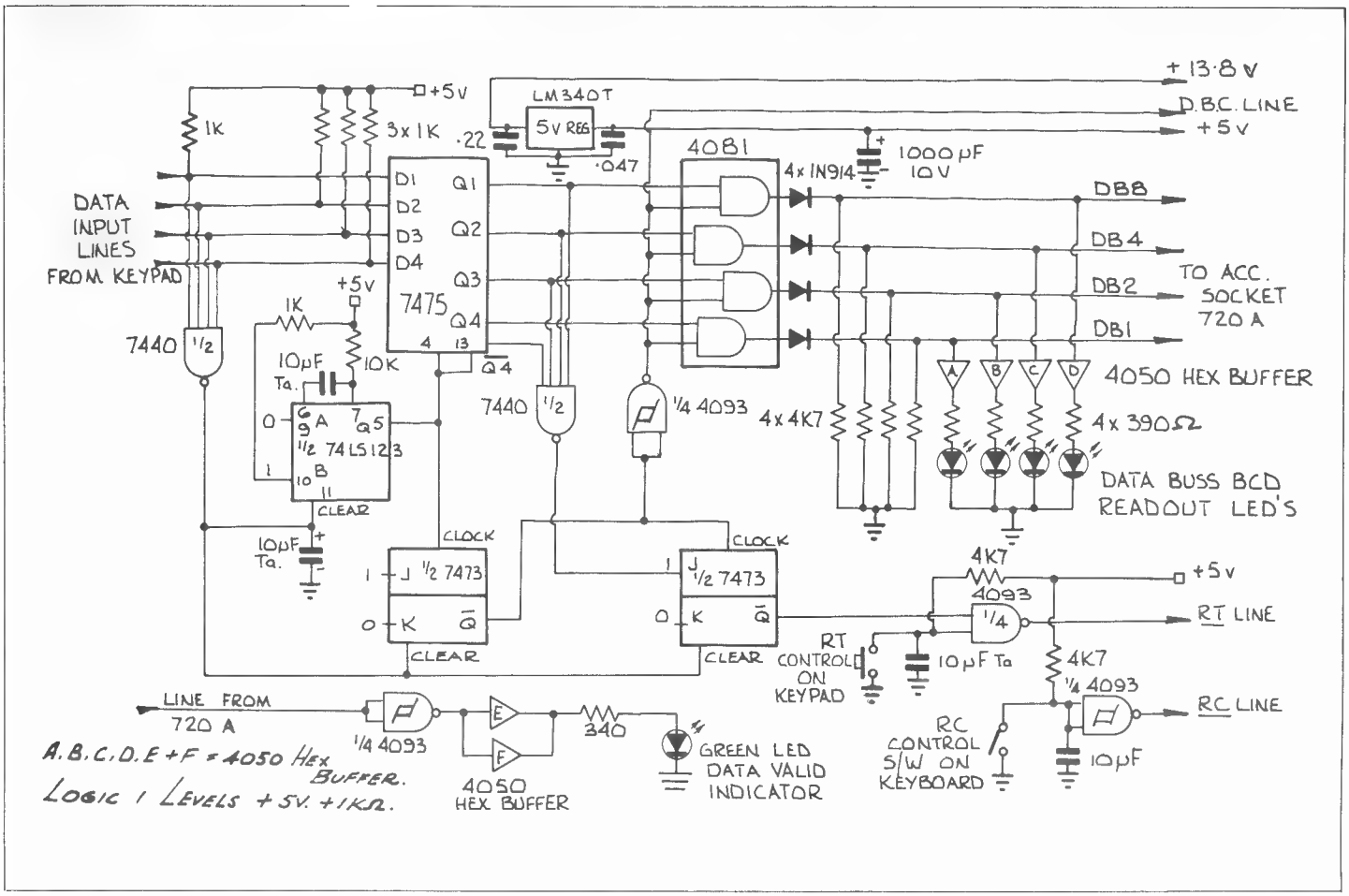
A full circuit diagram is provided and clearly identifies all relevant data and control lines. I do not propose to discuss the circuit function in detail; however, a list of the functions it carries out may be of interest.

1 Suppression of key bounce.
2 Generation of control levels necessary for programming or reading the CPU.
3 Sequencing of control levels where necessary and
4 The provision of a visual indication of the data on the Data Bus Lines and the logic level of the $\overline{DV}$ line.

Layout is not critical, all components are cheap and readily available. Construction should not present any problems providing one observes the rules relating to the use of CMOS and TTL integrated circuits. My unit was assembled on a piece of veroboard. There is no reason why CMOS ICs cannot be used throughout if desired. I would, however, make the point that if this is done, the power supply level must not exceed five volts: the CPU in the IC720A tends to malfunction when presented with Logic Levels in excess of those normally available from TTL.

ACCESSING THE CPU AND MESSAGE FORMAT.

It is assumed at this stage that the diode array and logic board have been assembled



Logic Board * indicates connection to ACC SKT of 720A.

and interconnected and that routine circuit checks have been made. I would suggest that it is most important to ensure that every key to be used on the keyboard generates the correct binary code when depressed.

STEP 1 Depress and release the address key, then depress and release the RT key. If all is well, the $\overline{DV}$ indicator (green LED) will be lit and so also will be the red LEDs associated with the DB8, DB4 and DB2 lines.

This procedure places the address data bit on the Data Bus and raises the Data Bus control line to a logic 1. Releasing the address key allows the Data Bus control line to return to logic 0 and depression of the RT key places a logic 1 on the RT line allowing the indicator LEDs on the Data Bus Line to read the last bit of data (the address) sent to the CPU. NB. Some form of readout at this point is necessary. The process of addressing the CPU takes a finite time dependent on the state of the internal houskeeping circuit and at times it may be found necessary to repeat the actual address procedure. I mention this point specifically because it will be of relevance to those interested in further developing the controller to the stage of having multiple memory and scan facilities.

Step 2 The remaining data is entered into the CPU simply by pressing the appropriate keys in the correct sequence which is as follows:

1 Desired mode ie USB, LSB, AM, CW, RTTY.
2 Desired VFO (A or B) and
3 Six digits in descending order of significance in order to define the desired frequency of operation. At this stage a glance at the digital readout on the IC720A will show that the transceiver is now ready for operation on the frequency that has just been keyed in. The desired VFO and mode of operation may not be as required. The explanation for this will be given later.

The entry of a data bit into the CPU requires the following:

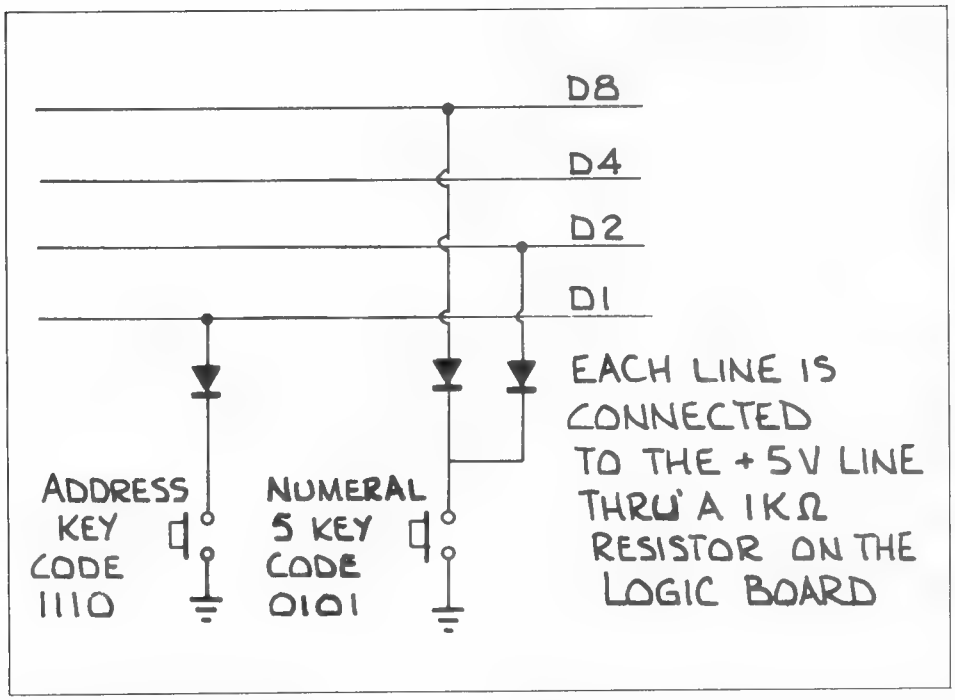
a The appropriate data bit must be placed on the Data Bus lines
b The Data Bus line is then raised to logic level 1
c Step (b) having been achieved, the RT line is raised to logic level 1 and
d The RT and Data Bus Control Lines are simultaneously returned to logic 0.

The logic circuitry does exactly this each time a key is depressed and released except that in the case of the address key the RT line is held at logic 0.

Note With respect to the entry of the actual frequency data, the first digit entered will define tens of MHz thus if you wish to enter a frequency of say 7.065.0 MHz be sure to enter the digits 070650. If you fail to do this the CPU will be confused, you may be confused and the readout on the transceiver will suggest that it has suddenly become a VHF rig! You will also find that the receiver has gone very quiet. In the event of such an error, one merely has to readdress the CPU and encode the correct data.

THE RT CONTROL KEY

Once the CPU has been accessed (step 1) repeated actuation of the RT key steps through, in normal sequence, the data stored in the CPU. With each operation of the RT key a specific data bit in the CPU will be displayed in BCD form by the red LEDs wired to the Data Bus Lines. By way of example, let us assume that the set is tuned to lower side band, VFO A and a frequency of 7.050 MHz. You wish to operate on upper side band VFO A and 14.050 MHz. Access the CPU by depressing the address keys and RT keys in turn, then depress and release the upper side band key, VFO A is OK therefore press and release the RT key. The digits 1 and 4 have to be entered at this stage, therefore depress the appropriate keys in sequence. The remaining four digits do not need to be changed therefore press the RT key four times. Clearly it is just as easy to encode the CPU in full each time but for those interested in further development in understanding of the true function of the RT line will be important.


D8
D4
D2
D1
EACH LINE IS CONNECTED TO THE +5V LINE THRU A 1KΩ RESISTOR ON THE LOGIC BOARD
ADDRESS KEY CODE 1110
NUMERAL 5 KEY CODE 0101

THE RC LINE SWITCH

The CPU incorporates an internal housekeeping circuit which in normal operation takes into account the setting of various buttons on the front panel of the set, for example VFO A, VFO B and the various buttons to define operating mode. When the RC line is held at logic 0, priority is given to the internal housekeeping circuitry, ie if the buttons on the panel are set for lower side band and VFO B and an attempt is made using the key board to change operating mode VFO and frequency it will be found that although the frequency will change to the one desired, the set remains with the mode and VFO functions unaltered and in complete correspondence with the setting of the buttons on the front of the set. Setting the RC line to logic level 1 overcomes this difficulty. With the RC line at logic 1 the keybord has priority and the CPU will process data exactly as it is encoded from the keyboard. As a matter of interest setting the RC line to logic level 1 also serves to disable the inhibit on transmit mode for frequencies outside the amateur bands.

THE $\overline{DV}$ LINE

Essentially this line is used to furnish a visual indication that data is valid at each step of the encoding process. In short, if the green LED goes out you have made a mistake, or a malfunction has developed.

A FEW POINTS WORTHY OF NOTE

1 With the circuit provided the time constant for the debounce function is perhaps a bit long. Providing the encoding process is carried out slowly and deliberately, there will be no problem. If however one tries to rush the encoding procedure the results, to say the least, will be quite confusing.

2 When the controller was first put into service it seemed a good idea to encode the required data and then access the CPU on the assumption that when necessary, the next data entry could be fed to the CPU starting with the mode key. To put it simply, the CPU did not go along with my "good idea". It was noted that after about one minute the DV indicator LED would go out and that the CPU could no longer be accessed in the normal way. Further, manual tuning of the trasceiver appeared to be lost also. Experience has shown that no harm is done to the equipment but when such an impasse results it becomes necessary to switch off for about thirty seconds and start all over again.

3 A hint for those interested in adding memory and/or scan functions to the control unit. As it stands at present, the encoding problem has been reduced to one of sequentially activating and deactivating ten simple switches. There is one snag; it is necessary to check that the first two operations have in fact accessed the CPU before encoding can begin.

To make full use of the memory function of the IC720A a permanently active back-up power supply for the CPU is required. Apart from the obvious risk of fire and equipment damage resulting from a supply failure occuring in the absence of the operator, even the briefest loss of line voltage results in loss of data in the memory. The controller described facilitates rapid selection of any desired mode of operation, VFO and frequency and virtually obviates the need for the one memory function dependent upon a back-up supply. It should be possible to construct a controller such as the one described for somewhere near the cost of the back-up power supply providing, of course, a suitable keyboard can be salvaged from some other equipment. The controller makes operation of the transceiver substantially easier, and with minor modifications could be an invaluable aid to a blind operator.

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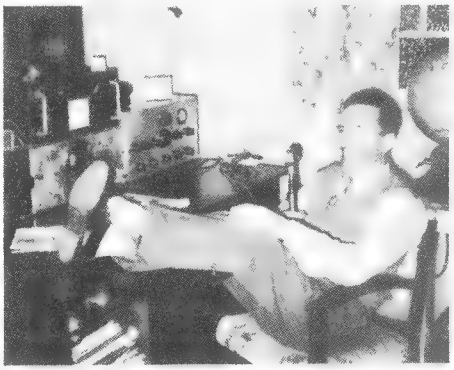
WHO IS THIS AMATEUR?

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld 4101



Anyone who has listened regularly on the bands during these last forty-five years must have heard his pleasant, well-spoken voice, either working DX or ragchewing. He first became interested in wireless in the early thirties when he built a two tube regenerative receiver and heard amateurs in QSO. The 'bug bit' and, to use his own words he said, "That's for me!". Consequently, he took out his licence on 21st June 1937, operating firstly in Brisbane, then for many years in Gympie before returning to Brisbane and finally settling at the seaside resort of Brighton, Queensland.

His first transmitter was a MOPA, using a 201A final; this meant QRP operation of a few watts maximum. Like so many old devotees of his era, his station was completely homebrew for a long time until he eventually changed to SSB and commecial gear.

Professionally he was a Broadcast Technician with several Queensland commercial radio stations, viz 4SB, 4BU, 4LG and 4GY. A man of many talents, he did his stint as a DJ (called announcing in those days) and as the station's sales repesentative. He retired from broadcasting in 1970 and operated a mixed business at Paddington, Brisbane for eleven years; now he divides his time between fishing, gardening, music appreciation and amateur radio — in other words, lives the life of Riley.

A long time member of the WIA he was active with the Wide Bay Burnett Branch for many years. As a final clue, he appeared on the front page of AR in October 1964 together with a group of scouts at the Jamboree on the Air. You've guessed rightly — his call is VK4XR (Xray Romeo) and his name is Eric Chippindall.

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WA
WATCH
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A TWO BY FIVE EIGHTHS WAVELENGTH VERTICAL FOR SIX METRES

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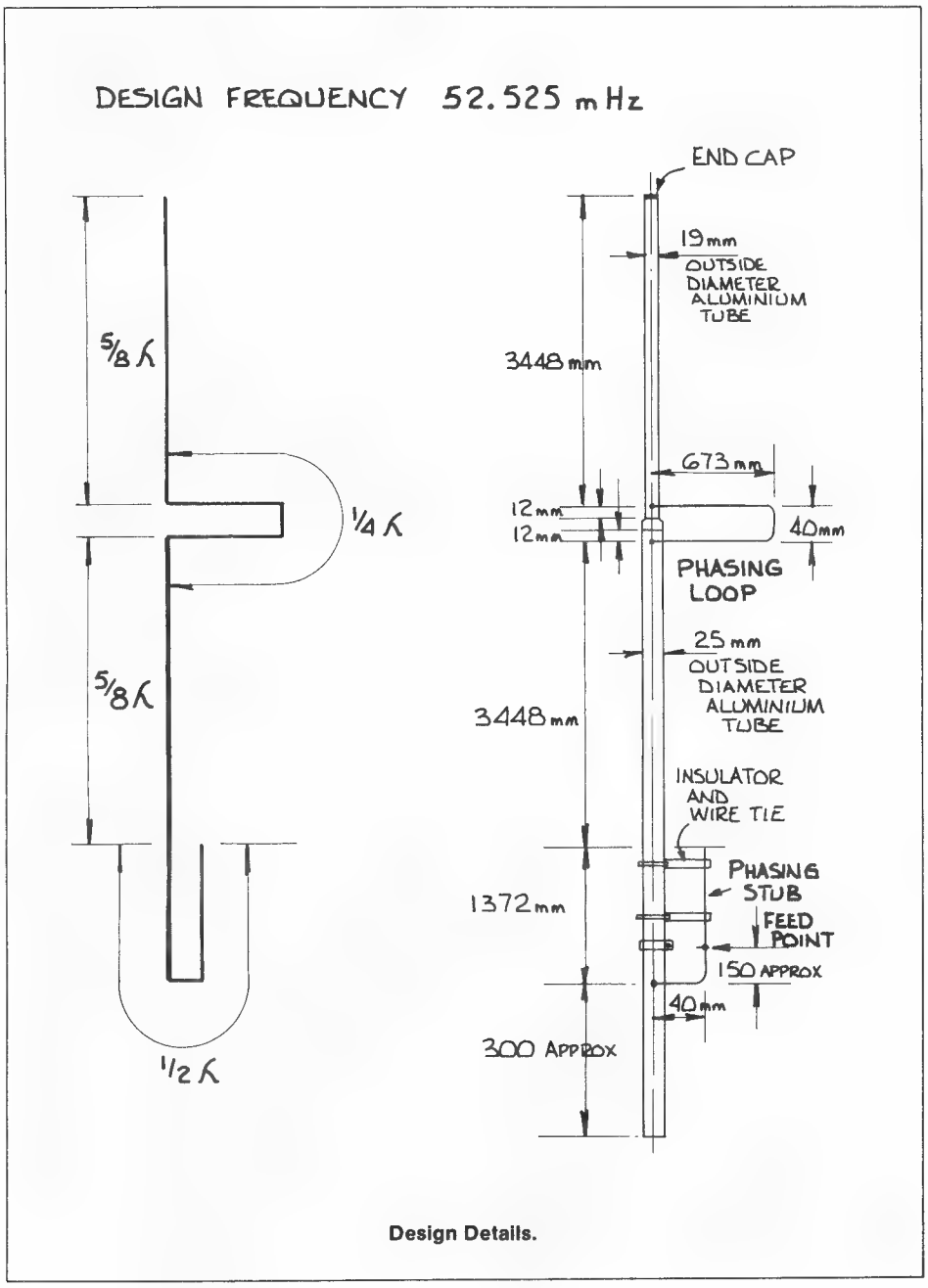
16 Mills Road, Glenhaven NSW 2154

The antenna to be described is a vertical consisting of two five eights wavelength sections in phase. With the design sizes given it has an SWR of 1.05:1 at 52.6 MHz and less than 1.5:1 over the 52-54 MHz band. It has withstood some fierce winds at its installed height of twenty seven metres and gives good omnidirectional coverage.



Design Details.

My first design used small diameter tubing but was too flexible and had the disconcerting habit of bending like a banana in strong winds so the top half become horizontal! Signal reports had to be given as "S5 to windward", or "S3 to leeward with gusts to S6". With the tube sizes now specified the antenna is light but strong, and I have minimised holes and other stress points as they hasten fatigue failure. Although my design is for 6 metres the principles can be applied to other VHF antennas.

COMPONENT MANUFACTURE — FOR 52.525 MHz DESIGN FREQUENCY

Cut a length of 19 mm outside diameter by 1.42 mm wall thickness aluminium tubing to 3460 mm (5/8 wavelength by 12 mm).

Cut a length of 25 mm outside diameter by 1.6 mm wall thickness aluminium tubing to at least 5130 mm which allows about 300 mm for clamping to a support. I used a full 5.5 metre length.

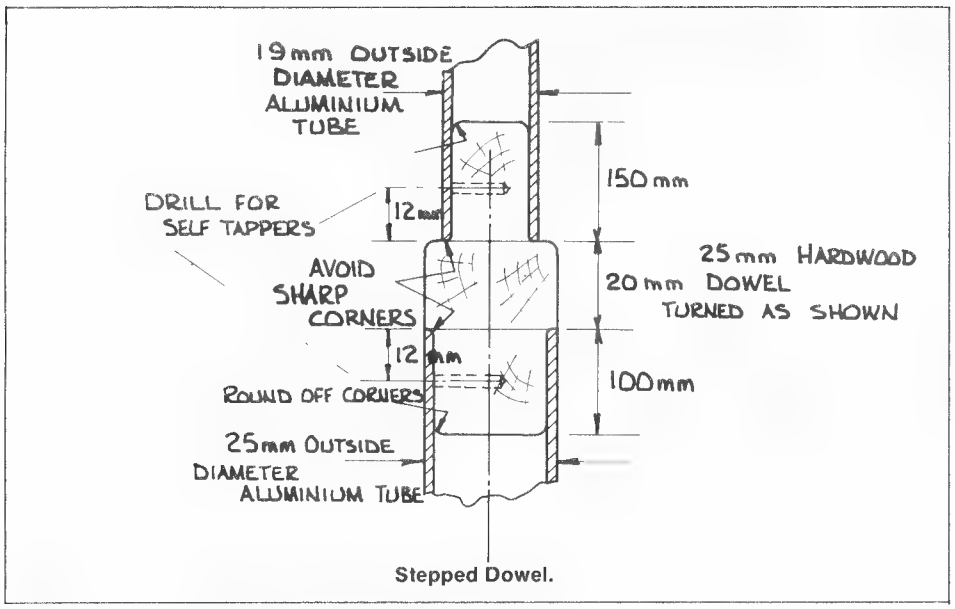
Deburr and file a radius on the inside ends of the tubes.

Machine a 270 mm length of 25 mm diameter hardwood dowel so that 150 mm is a close sliding fit inside the 19 mm outside diameter tube. Turn down the other end of the dowel so about 100 mm is a slide fit in the 25 mm outside diameter tube. When turning down the dowel avoid sharp edges at the diameter changes. Heavily radius the ends of the dowel to reduce stresses where the tubing flexes under wind loads. Waterproof the dowel by dipping it in marine varnish, epoxy resin etc. If you don't seal the timber it can absorb moisture, expand and will easily split the tubing.

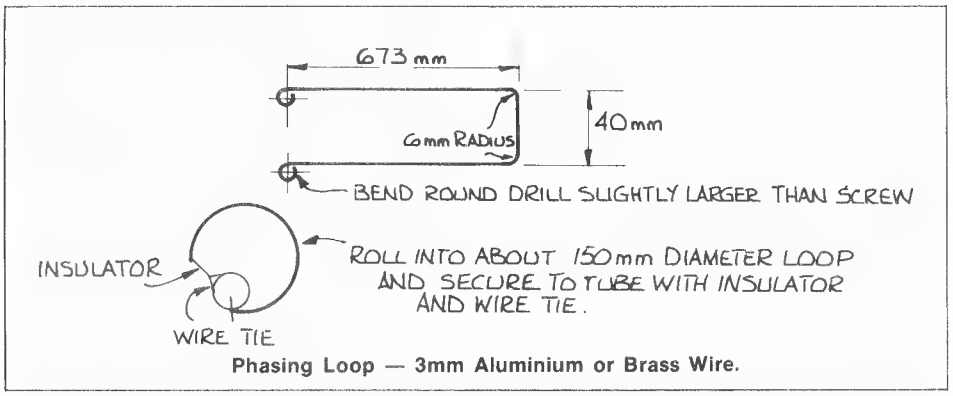
Bend up the phasing loop from aluminium or brass wire of about 3 mm diameter starting with a length of about 1425 mm which allows enough for 2 loops for screws to be inserted. Avoid sharp bends or nicks in the wire as these promote stresses. After making the U-shape I rolled it round a 150 mm paint tin to make it more compact and durable.

Bend up the lower phasing stub. Although you can use aluminium wire I used brass welding rod (3 mm diameter) so that I could solder the co-ax wire directly to it. To prevent galvanic corrosion I fitted stainless steel washers between the brass and the aluminium. The starting length for the stub is about 1425 mm to allow for bending a loop for a screw.

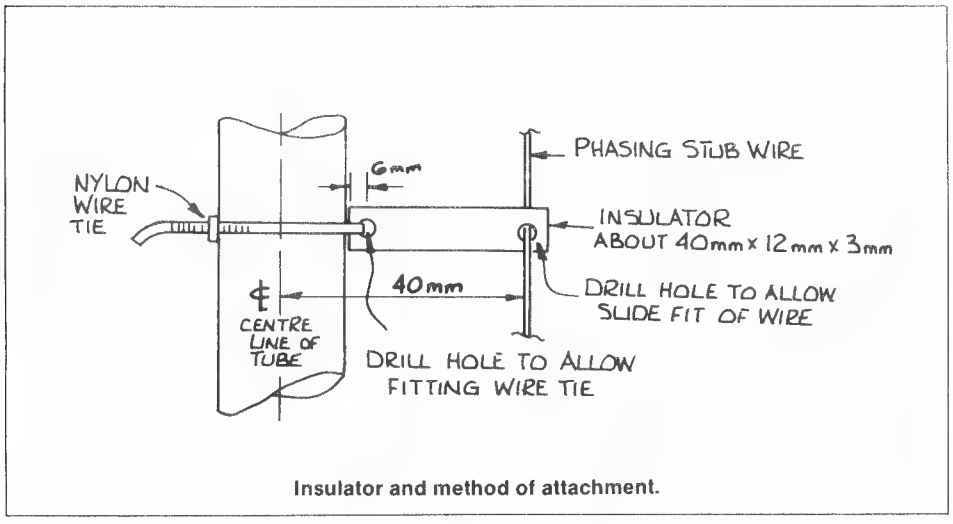
Make up 4 or 5 insulating spacers about 40 mm long. I used black polypropylene strip



Stepped Dowel.


673mm
6mm RADIUS
40mm
BEND ROUND DRILL SLIGHTLY LARGER THAN SCREW
INSULATOR
ROLL INTO ABOUT 150mm DIAMETER LOOP AND SECURE TO TUBE WITH INSULATOR AND WIRE TIE.
WIRE TIE

Phasing Loop — 3mm Aluminium or Brass Wire.


NYLON WIRE TIE
6mm
PHASING STUB WIRE
INSULATOR ABOUT 40mm x 12mm x 3mm
40mm
DRILL HOLE TO ALLOW SLIDE FIT OF WIRE
CENTRE LINE OF TUBE
DRILL HOLE TO ALLOW FITTING WIRE TIE

Insulator and method of attachment.

about 12 mm wide by 3 mm thick but other alternatives will be suitable. Drill small holes about 12 mm in from each end, to take the phasing stub wire and a wire tie.

Turn down two lengths of dowel so they will just slide inside the 25 mm outside diameter tube. Make one length about 150 mm and the other 300 mm. Again, heavily radius the ends and waterproof the dowels.

Make up a circular clamp to fit the 25 mm outside diameter tube so the co-ax cable shield can be attached. Stainless steel hardware is used to separate the co-ax shield from the aluminium. Alternatively use a stainless steel hose clamp.

ASSEMBLY

Tap the 150 mm long dowel into the 25 mm outside diameter tube until it is centred under the point where the phasing stub will be attached. This is 4832 mm from the end of the tube (⅞ wavelength × 12 mm). Drill a hole at this point for a self-tapping screw.

Tap the 300 mm dowel into the 25 mm outside diameter tube behind the first dowel so that it is under the clamping location for the antenna support.

Fit the stepped dowel into the opposite end of the 25 mm outside diameter tube and drill a hole for a self tapper exactly 12 mm in from the tube end.

Remove the stepped dowel and fit it now into the 19 mm outside diameter tube. Drill a hole for a self-tapper 12 mm in from the end of the tube, making sure the two holes in the dowel are in line.

Assemble the lower phasing stub to the 25 mm outside diameter tube using a stainless steel self tapper (and stainless steel washers if you used brass or copper wire). Space the stub from the tube using the insulators and nylon cable ties round the tube.

Assemble the two tubes together with the stepped dowel and attach the phasing loop with two stainless steel self tappers. Use an insulator strip and cable tie to support the centre of the phasing loop if you have rolled it into a circle. Fit a cap or plug into the top of the 19 mm outside diameter tube to keep water out.

I sanded the aluminium tubes at each screw hole and applied a dob of "Aloxin" or similar conductive paste to improve electrical contact.

You now have a monstrosity over seven metres long — but it should not prove too difficult to carry and lift up to the vertical. Some care is needed to prevent accidental damage to the phasing loop and stub during erection.

TUNING

I hammered a one metre length of suitable sized water pipe into the ground to act as a clamping support for the antenna during tuning.

The co-ax shield is attached to the circular clamp and positioned approx 150 mm up from the stub attachment point. The co-ax centre wire is attached to the stub via a crocodile clip about level with the shield position.

Connect an SWR meter into the co-ax about one metre from the feed point. Feed a low power carrier at 52.525 MHz (or your design frequency) into the antenna and slide the co-ax connections up or down to achieve minimum SWR.

Subsequently, when my antenna was raised to five metres the point of lowest SWR moved up to 52.6 MHz and didn't alter further at the installed height of twenty metres, so I didn't bother trying to retune it to the design frequency.

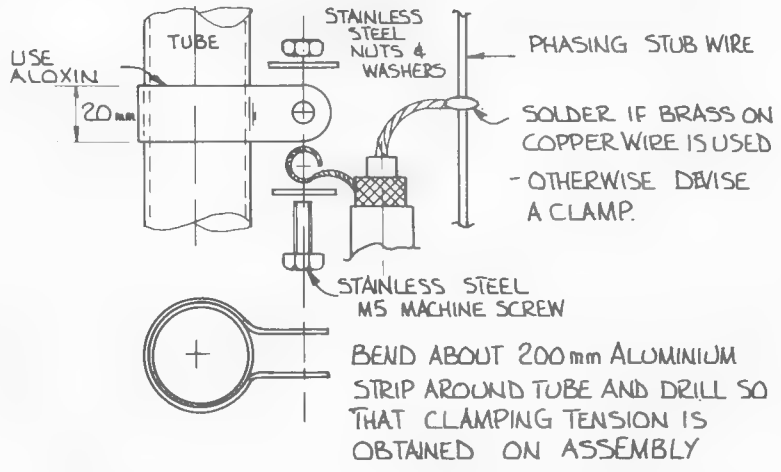
If you used brass or copper wire for the phasing stub you can solder the co-ax wire to it. If you used aluminium you need to fit some sort of clamp and use "Aloxin" etc to make a permanent connection.

I use a quarter wavelength co-ax balun to balance the feed but couldn't detect any difference without it. The balun is coiled into a 150 mm circle and it and the co-ax feed line are clamped to the antenna using more nylon wire ties (they sure come in handy.) Make sure you waterproof the end of the co-ax.

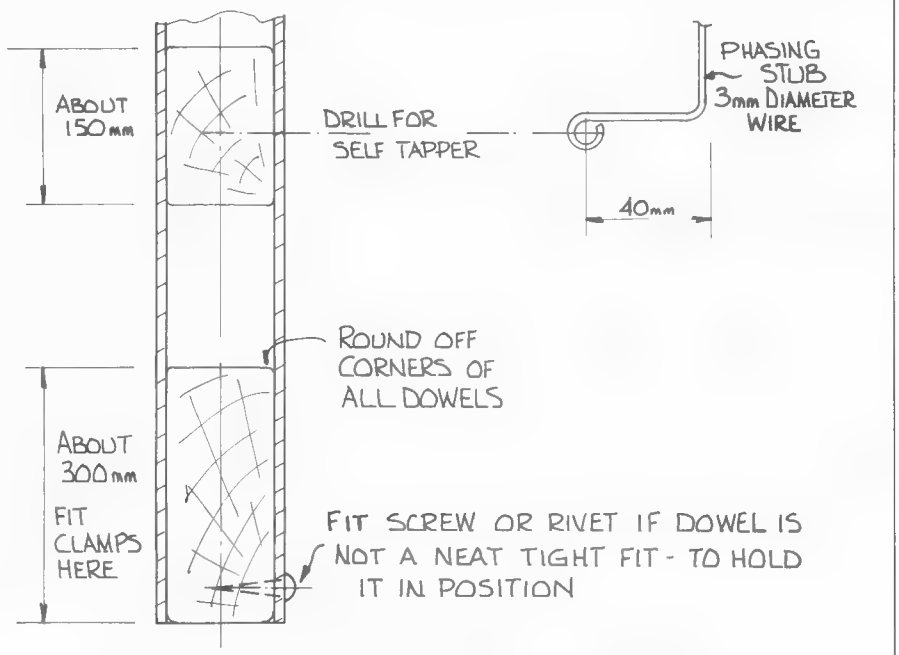
The antenna can be clamped to its support using U-clamps or similar making sure you position them over that internal reinforcing dowel. Use insulating tape to separate dissimilar metals. The antenna is at earth potential at this point.

Following are readings of SWR taken after raising the antenna firstly to five metres, then to twenty metres.

FREQUENCY (MHZ)					
52	52.5	52.6	53	53.5	54
SWR at ground level					
—	1.02	—	—	—	—
SWR at 5 m above ground level					
1.5	1.1	1.05	1.15	1.25	1.3
SWR at 20 m above ground level					
1.4	1.1	1.05	1.15	1.4	1.5


USE ALOXIN
TUBE
20mm
STAINLESS STEEL NUTS & WASHERS
PHASING STUB WIRE
SOLDER IF BRASS ON COPPER WIRE IS USED
- OTHERWISE DEVISE A CLAMP.
STAINLESS STEEL M5 MACHINE SCREW
BEND ABOUT 200mm ALUMINIUM STRIP AROUND TUBE AND DRILL SO THAT CLAMPING TENSION IS OBTAINED ON ASSEMBLY

Circular Clamp and method of attaching Coaxial Cable.


ABOUT 150mm
DRILL FOR SELF TAPPER
PHASING STUB 3mm DIAMETER WIRE
40mm
ROUND OFF CORNERS OF ALL DOWELS
ABOUT 300mm
FIT CLAMPS HERE
FIT SCREW OR RIVET IF DOWEL IS NOT A NEAT TIGHT FIT - TO HOLD IT IN POSITION

Re-inforcing Dowels and attachment of Phasing Stub.

I also discovered that the SWR dips to a minimum of 1.6:1 at 38, 42.5 and 47 MHz, and rises to a maximum of 3.2:1 at 39.9, 44.5 and 49 MHz. Fascinating, but don't ask me what it all means!

Undoubtedly you can vary the construction and materials to suit what you have available. The critical dimensions are the lengths of the tubing and the phasing wires and these are given by standard wavelength calculations.

Mechanically it is important to reduce stress points (or reinforce them) and to minimise galvanic corrosion between dissimilar materials. The extra effort of fitting radiused, reinforcing dowels and using stainless steel hardware will ensure maximum life and reliability.

See you on 6FM.

LIST OF MATERIALS

One 3460 mm length aluminium tube 19 mm outside diameter by 1.42 mm wall thickness (6061 grade preferred), one 5130 mm length (or longer) alummium tube 25 mm outside diameter by 1.6 mm wall thickness. Two 1425 mm lengths 3 mm diameter aluminium wire (or brass, copper). Welding rod or fencing wire could be used. One 750 mm length 25 mm diameter hardwood dowel (broom-handle etc).

One 200 mm aluminium strip about 20 mm wide x 1.2 mm thick (for circular clamp round 25 mm outside diameter tube). Alternative — stainless steel hose clamp. Five or six insulating spacers approx 40 mm x 12 mm x 3 mm. One plug or cap to fit 19 mm outside diameter tube.

Three 20 mm x 10 g stainless steel self-tapping screws. Approx 8 stainless steel washers to fit screws. One 25 mm x 6 mm stainless steel machine screw with nut. Approx 9 x 150 mm nylon cable ties. A tube of "Aloxin" or similar conductive paste suitable for aluminium. **AR**

Family Radio

The Russell family of Coolbellup, WA believe amateur radio is a family affair.

Arthur is a newcomer to the bands, obtaining his licence (VK6NAR) in November 1982, but in this short time he has not let the grass grow under his feet.

Arthur tunes up his "Telephone Exchange".

Recently he bought an old telephone exchange and built his transceiver, multi metre, aerial rotator etc into it. His XYL is his QSL manager and the children climb the trees to connect the antenna wires.

AR

THREE NEW BOOKS HAVE JUST ARRIVED FROM RSGB

Teleprinter Handbook. (Hard Cover)

Radio Communications Handbook. Vol 1 & 2 combined.

World at their Fingertips. (Hard Cover)

These and many more books are now available from your division or from Magpubs, PO Box 300, Caulfield South, Vic. 3162.

EXERCISE "SES MITCHELL"

Ted Gabriel VK4YG
WICEN CO-ORDINATOR REGION ONE, QUEENSLAND
3 Corkill Street, Freshwater, Qld. 4872

Queensland's highest mountain, Mt Bartle Frere, 1622 m (5230 ft) is located 55 Km (34 miles) south of Cairns and rears up behind the small sugar mill town of Babinda. This mountain and its near neighbour to the north, Mt Bellenden Ker, 1541 m (5120 ft) lie close to the aircraft approaches to Cairns and have, over the years, claimed many aircraft unfortunate enough to fly too close to them in cloud. It was on this basis that the Babinda group of the State Emergency Service planned an ambitious search and rescue exercise to cover a period of forty eight hours, and invited all local emergency service groups to participate.

Another purpose of this exercise was to test portable HF and VHF radio equipment under tropical rainforest conditions in order to find suitable units for the SES since present portable communications equipment such as 27 MHz handhelds were virtually useless in the North Queensland environment and most back pack type HF rigs too heavy to lug up tropical mountains.

The Cairns group of Region One WICEN was asked to provide back up communications for the SAR teams and a forward base communications centre in the field.

Accordingly, Oxley VK4BKO and Ted VK4YG attended planning meetings with the SES where it was determined that at least four unrestricted or 'K' licencees would be required to accompany the SES teams so we formulated our operational plan on the use of the Cairns repeater, VK4RCA and several VHF Simplex channels.

The Cairns repeater is located at the television station on Mt Bellenden Ker, the antenna, halfway up the 92 metres mast is at an altitude of 1628 metres making it the second highest in the country. Its range is quite remarkable and it has the ability to reach into some of the seemingly inaccessible corners of this rugged mountainous region.

A twin engined aircraft lost in the area was only discovered when Telecom technicians on their way up to the station on the 4.8 km long cableway smelled the petrol fumes from the ruptured tanks.

Our operational plan was submitted to the local DRI on the basis that a WICEN net controller would assume control of the repeater as required for primary traffic to ensure the safety of personnel on the mountain and that free periods for general use would be allowed for non exercise traffic where possible. This plan was approved by the DOC.

Since Cairns WICEN had earlier surveyed many emergency forward base sites with VHF operations in view the choice for this exercise was not difficult.

A ridge rising up from Woopen Creek on the Russell River south of the mountain gave a direct line of sight on this side while the repeater on Mt Bellenden Ker covered the northern and eastern faces.

Thus two primary channels were allocated to the WICEN operators with the climbers — Repeater 6950 and 51 Simplex plus a separate medical emergency channel on 53 Simplex. A command link from forward base to Babinda SES HQ was set up on Ch 52 Simplex and three VHF mobiles were available.

WICEN operators with the SES teams were Colin VK4EX, Andrew VK4KGA, Albert VK4AEQ and his son Michael VK4NDD.

Forward base net controllers and operators were Oxley VK4BKO: 2 I/C and RTTY operator, Ted VK4MH, Gordon VK4AGZ, Allen VK4BAJ, John VK4VKL, Bill VK4VGA, Anne VK4NXK and Phyl VK4NDG.

Saturday morning 26th March was overcast and raining as group leaders gathered in the pre dawn gloom at Babinda SES for briefing. While waiting Ted VK4YG spoke with canefarmer Silvio Grasso who, in April 1942, was a member of the team which climbed the mountain to search for an American B25 Mitchell bomber which had crashed in bad weather while returning from a bombing raid in New Guinea. Silvio said that after locating the aircraft and burying the crew members they later had to climb back up again with an American party to recover the bodies.

As we watched the young SES members quietly and carefully checking their packs and equipment, we realised that for some of them this was not the first time that they had been up that mountain in their 'backyard'. Indeed some had recently been out searching for a light aircraft which was lost on a flight between Mount Isa and Cairns and has not yet been found. Also, some SES team members were carrying light weight altimeters and since it is almost impossible to determine map grid refer-

WICEN forward base station. Photograph by VK4NXK

ences in rainforest the altitude on a known track is given as a position report.

Following briefing the SAR teams were transported to the start of their respective climbing tracks and the exercise commenced.

Colin VK4EX and Albert VK4AEQ were carrying ICOM IC2As with extra battery packs and Andrew VK4KGA had a Yaesu 290R with extra energiser batteries. The WICEN forward base at Woopen Creek had a Kenwood TR9000 into a 6 element yagi on Channel 51. IC2A handhelds were sufficient for use into the repeater which was line of sight. An IC22S mobile provided a command link on Ch 52 to Gordon VK4AGZ in his mobile at Babinda SES HQ while another IC22S was available for the medical emergency channel (53) or as a spare.

A field telephone connected us to an SES forward base further along the same ridge where operators were monitoring HF and VHF channels.

After preliminary radio checks with the climbers the forward base operators settled down to routine watch keeping, hourly position reports and message traffic.

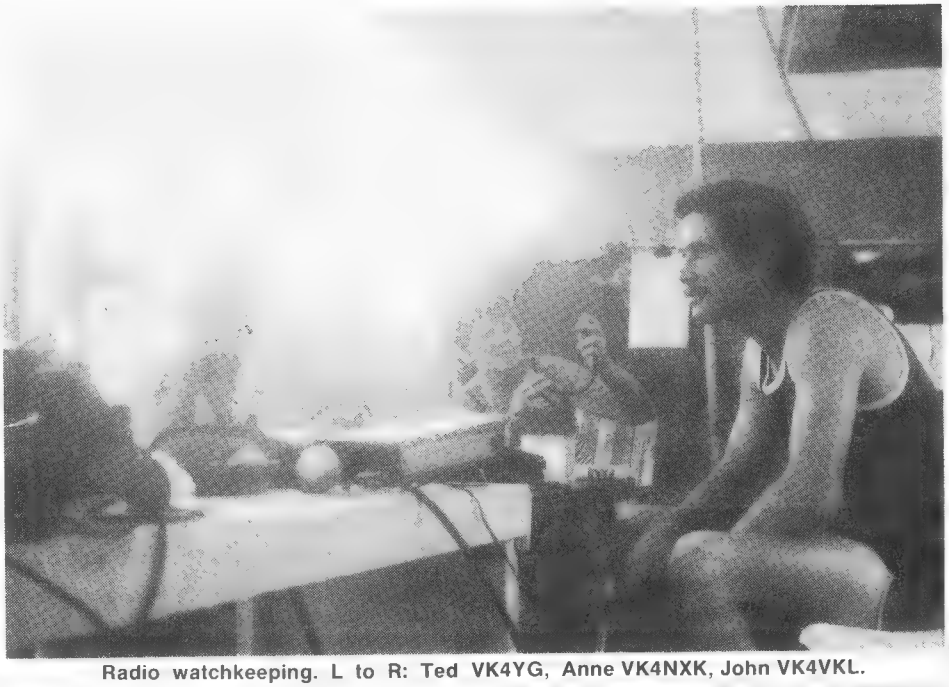
The weather was anything but pleasant with frequent showers and periods of gusty wind, while the mountain was completely concealed behind a mantle of cloud. Some people were even doubting if the exercise should proceed, however, it was pointed out that aircraft don't usually fly into mountains in clear sunny weather!

While our forward base was reasonably dry, odd wind gusts would blow water over equipment and one gust did just that to Oxley's Tono keyboard — undaunted, he proceeded to pull it all apart and with the help of John VK4VKL, managed to dry it out and get it operating again. Although subjected to frequent showers duty operators did not grumble as they realised what their mates on the mountain had to contend with.

The SES Welfare group were delivering hot meals in special canteens and off duty operators could 'boil the billy' in Ted's caravan. Had the weather been fine it was planned to provide the climbers with hot meals but with low cloud and poor visibility helicopter operations were impossible.

WICEN COMMS proceeded smoothly until mid morning when Albert VK4AEQ failed to report at several sked times; we then learnt through an SES channel that his rig was U/S, apparently through water penetration. Albert and his 14 year old son Michael, VK4NDD returned to base escorting an SES member who was suffering from extreme exhaustion.

At 1530 hours, Andrew VK4KGA, happily announced that team 'Bravo' had reached the crash site (1413 metres) and were setting up camp, everyone was well but rather damp and having trouble with leeches. Colin VK4EX, with team 'Charlie' reported that they were still about two hours from the site with a lot of 'up and down' country in between and so had decided to camp for the night. 'Delta' team with radio problems had reached the South peak and also made camp after a hard struggle up the most difficult approach.



Photograph by VK4NXK

Radio watchkeeping. L to R: Ted VK4YG, Anne VK4NXK, John VK4VKL.

After the evening meal and stand down time WICEN operators were able to relax but a listening watch had to be kept in case of emergencies. Light and power were supplied from a small covered 'power house' consisting of two 350 watt gen sets which were run alternatively. Even colour TV was available in Ted's caravan.

Sunday 27th March: Dawn and it was still raining and 'that' mountain was again covered with cloud — the first calls from 'on high' informed us that everyone was well even if somewhat damp and cold. Teams 'Delta' and 'Charlie' were instructed to return to base while team 'Bravo' were to collect suitable items of aircraft wreckage that they could carry for donation to the Australian War Museum and to local museums. An early weather forecast indicated clearing showers with freshening E-SE winds.

At 1130K a notable 'first' for Region One Cairns WICEN took place with the transmission and receipt of a RTTY message from the WICEN forward base to the State WICEN Co-ordinator, Ken VK4KD, on the Gold Coast. Anne VK4NXK, typed the message into the memory of the Tono and Oxley VK4BKO, sent it on its way on 20 metres thus demonstrating that in the Queensland WICEN RTTY network we now have a superior high speed method of handling bulk emergency traffic even under portable conditions in the field.

Teams 'Charlie' and 'Delta' arrived back at Babinda around mid-day and were given a warm welcome and an equally warm meal by the ladies of the SES Welfare group, most of the team members had bleeding leech punctures which were quickly attended to by the medical orderlies. 'Bravo' team, as Andrew advised us, halted at 1245K on the way down for a rest and a light meal and finally arrived back at base around 1500 hours.

At debriefing the Cairns WICEN team were praised for the efficiency of their VHF communications, the SES described their

Photograph by Stephen Fowler

'Bravo' team leader Alec Davies examining wreckage of the Mitchell.

HF backpack sets as 'useless junk' and opted for a lightweight VHF set as they were very impressed with the rigs used by Colin and Andrew.

As in any combined exercise of this nature valuable lessons are learnt by all groups involved which leads to a higher degree of efficiency in an actual operation.

In congratulating all those who participated the retiring Regional Operations Officer, Sergeant Joe Porter, said that a high level of dedication was evident in those who were prepared to climb tropical mountains in wet season conditions on search and rescue missions and they must be truly regarded as professionals.

The Cairns WICEN team is proud to be included in that category.

AR

EQUIPMENT REVIEW

Ron Fisher VK3OM
TECHNICAL EDITOR
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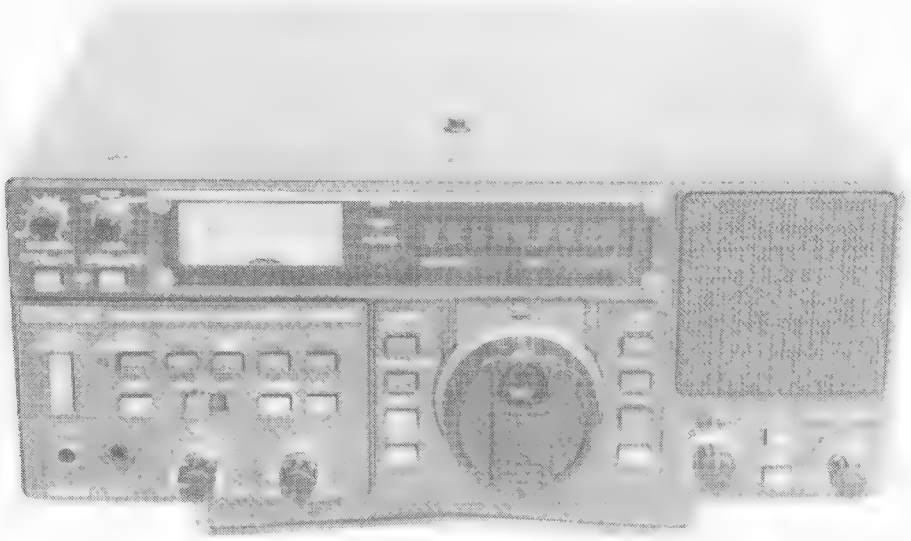
THE ICOM IC-R70 RECEIVER

It is perhaps strange that as the ICOM Company were one of the first to produce a general coverage transceiver, it is only over the last few months that their first receiver has been released. They have no doubt had the technology required to do this for several years. One wonders what their market research on the production of a receiver only turned up. Whatever, several other Japanese firms have undoubtedly been doing very nicely selling their receivers now for some years. One thing however is certain, that when ICOM do something, they do not follow fashion but follow a method of design and presentation that sets their equipment apart from the others.



As might be expected, the R-70 has that ICOM look. In fact at a quick glance it could easily be mistaken for the IC-740 transceiver. It also incorporates many of the features that we have become used to in the ICOM amateur transceivers. As we shall later see, the R-70 has a performance that is in every way comparable with the IC-720A transceiver and performance has not been compromised by the introduction of gimmicks.

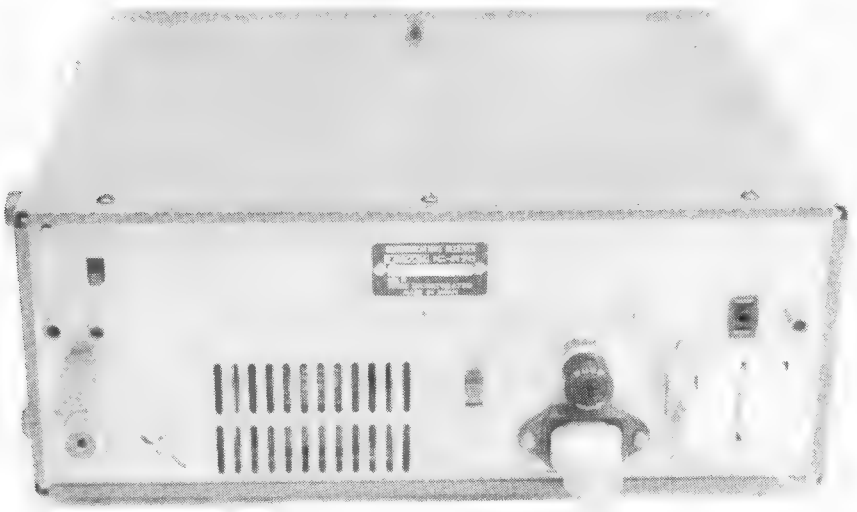
Let's have a look at the features of the IC R-70 receiver. Front panel size is the same as the IC-740 but depth is about 100 mm less. The height matches the IC-720 and ICOM intend to produce an adaptor to allow the 720A and the R-70 to operate as a fully integrated system with VFO control from either set. At the time of our review this adaptor was not available so I am unable to comment on its effectiveness.

The R-70 is an all mode receiver with provision for AM, CW, SSB, RTTY and FM reception. It has three speed tuning system and two separate VFO's. Coverage is from 100 kHz to 30 MHz in 1 MHz steps but it is possible to change the stepping rate from 1 MHz to amateur band selection only. The noise blanker is designed for either normal elecrical interference such as power line noise and car ignition noise or for the Woodpecker. Pass band tuning and a notch filter are provided to pull through the hard ones and an RIT control allows an offset from the selected VFO frequency. A monitor control allows you to listen to a companion transmitter and would no doubt be useful when the R-70 is teamed with the 720A.

The only facility that the R-70 does not have is a memory. Strange that ICOM did not use the 730/740 system or even enlarge on this. There is also no scanning offered. There is of course no analogue dial readout. Frequency indication is via a very bright six digit readout that also shows the mode and VFO selection. To finish off the line up of facilities, there is a tone and squelch control.

The R-70 is a triple conversion receiver with IF frequencies at 70.4515 MHz, 9.0115 MHz, 455 kHz and then back to 9.0115 MHz. The last IF is used in conjunction with the second IF frequency to produce the band-pass tuning. The pre-amp in/out facility on the 730/740 has been taken one step further on the R-70. There is now a Pre-amp in plus an attenuator position. The R-70 is normally AC operated but our review model was fitted with the optional 12 volt DC operation kit. The FM reception facility is also an optional extra which was fitted.

Other options are a 500 Hz CW filter and an extra 455 kHz SSB filter. This latter item was fitted to our review receiver but no mention is made in the instruction manual as to its effect or specification. The rear panel has quite comprehensive facilities. Again there is no information in the instruction manual as how many of them could be used. There is a 24 pin accessory



Rear View of the IC-R70.

socket which obviously allows access to the micro processor that controls the operation of the R-70 but apart from naming these functions, no mention is made of either their use or future intended use.

THE ICOM R-70 IN USE

On initial switch on the receiver comes up on 15 MHz if the general coverage mode is selected or on 7.1 MHz if the amateur band mode is selected. Side band selection is automatically chosen to give LSB on 7, 3.5, and 1.8 MHz and USB from 10 MHz up. The same change over point occurs in the general coverage mode also. Selecting the other sideband is a two button job. It is first necessary to push the function button and then the SSB button. The digital indicator at the left of the frequency readout will also show that 'U' or 'L' side band is in operation.

As is common with all ICOM gear, it is necessary to retune when the sideband is changed, the frequency difference being 3 kHz. It's a pity that ICOM haven't seen fit to overcome this and it is perhaps the least professional feature of an otherwise very professional receiver.

The R-70 differs from other current general coverage receivers in that the tuning is not continuous. Once a particular MHz range has been selected it is not possible to tune out of this range. To go up a MHz it is necessary to push the 'Band Up' button. Not only that but it is necessary to give the button a push for each and every MHz one wants to go up or down.

However in general the operation of the R-70 proved to be very satisfactory. The three tuning rates have been well chosen and are the same as the 730/740 transceivers. The 10 HZ steps give a tuning rate of 1 kHz per knob rotation, the 100 HZ steps 10 kHz and the 1 kHz steps an ideal band scanning rate of 100 kHz per knob rotation.

In my past reviews I have had some harsh things to say about noise blankers. The blanker in the R-70 is, without doubt, the best of the current bunch. Its action on eliminating the Woodpecker is excellent and can certainly make the difference of copy or no copy. The blanker action is equally good on ignition and other electrical type noises.

By using the two VFO's it is possible to up the receiver on two frequencies on two entirely different bands, that is two amateur bands or two short wave bands. Unfortunately the selected mode will not follow. If, for instance, you chose USB on 14.2 MHz with VFO one, your only choice would be LSB on 3.6 MHz with VFO two. If AM is required on 80 then it will be necessary to reselect USB on 20. With the R-70 operating from a constant AC supply then the last frequency tuned to will reappear when the set is turned on again. However if you are listening to a contact and decide to go up a MHz and then come back, your original frequency will have been lost unless you swap VFO's before the change of tuning.

All this sounds rather complicated but does not cause the confusion you might think and actual operating is, in most cases, easy.

The notch filter and the bandpass tuning are both similar to the set up in the IC-740. They are, however, now concentric rotary controls in place of the slider controls. As such they are easier and smoother to operate. Performance of both is similar to the 740.

The new pre-amp/off/attenuator switch gives one a chance to try everything. Using the R-70 on the higher bands, the overall gain sounded low with the pre-amp off. Sensitivity appeared to be OK but 'S'6 signals just would not lift the 'S' meter. I could find no instance where the attenuator was needed, and immunity to front and overload seemed very high. It's also nice to see an all band receiver fitted with an RF gain control which is missing from many contemporary receivers. The action of the RF gain is excellent, being smooth and progressive.

The built-in loud speaker works quite well. Although of small diameter, about 6 cm, it has a large and effective magnet that obviously gives it a much higher efficiency than normal. While many might prefer a large speaker in an external cabinet, the built-in unit has a well balanced response and an excellent transient response.

Now for a few 'funnies' discovered when operating the R-70. It seems that the CPU is rather slow in its operation. A quick stab at the Band Up or Down button will often have no effect. It often took quite a lengthy push to produce a frequency. At the same time, it took quite a while for the selected mode to catch up when changing bands. Maybe this is peculiar to this receiver, I don't know.

THE IC R-70 ON TEST

The following test equipment was used to produce our figures. Daven audio power output meter. AWA F242A noise and distortion meter. A 100 kHz crystal calibrator with multivibrator output. With no access to a calibrated signal generator, all sensitivity tests are subjective and are checked in side by side tests with other receiving equipment. Audio output was taken from the external speaker socket and the power meter terminated in 8 ohms. Noise level with the audio gain set at zero was -50 dBm unweighted and -42 dBm weighted. If you have sensitive hearing you might notice some hiss when listening on headphones.

Maximum audio output was measured at 4 watts at 40% distortion. The 4 watts could only be produced from a very strong signal from the calibrator and with the AGC switched off. At 2 watts output the distortion had dropped to 3.2% and at 1.8 watts it was a very creditable 1%. With the audio output set to 2 watts it was noted that the output rose to 2.2 watts when the AGC was switched from slow to fast.

It is interesting to note that these figures correlate very closely to our figures on the IC-740.

The tone control performed much better than the 740. At full effect it produced a drop of 12 dB at 2.5 kHz, -7 dB at 1.5 kHz, -5 dB at 1 kHz and -2.5 dB at 700 Hz.

AGC action of the R-70 is very good. Listening across the various bands in all modes, there was no sign of pumping or popping with a very constant output level. To check this, the crystal calibrator was fed in to produce signals varying from an indicated 'S'1 to 'S'9+30 dB with the preamp switched in. Audio output only changed by .5 dB over this range, an excellent figure.

The response of the SSB filter was checked by feeding in a weak signal, the output measured with the AGC switched off. The -6 dB points were at 200 Hz and 2.7 kHz. The output was down to -40 dB at 2.9 kHz. The response of the optional CW filter was checked in the same way, the -6 dB points being 400 Hz and 1.1 kHz with a very sharp cut off beyond these points. The notch filter was checked across the audio range. The actual drop in audio output was a constant 20 dB except below 500 Hz where it increased to 25 dB. When listening to a signal at normal level, 20 dB will reduce a hetrodyne to almost inaudible point.

It was noted that when the 100 kHz calibrator was fed into the receiver to produce an 'S'9+30 dB signal many spurious signals appeared throughout the tuning range, with a large amount of white noise on either side of both the wanted and spurious signals . . . In contrast to this, the

R-70 proved to be one of the best performers I have checked on the broadcast and long wave bands. Used with a long wire antenna about 20 metres long, broadcast and aircraft NDB stations were received with a notable lack of cross modulation. Frequency drift was checked by running the receiver in zero beat with VNG on 7.5 MHz. Any slight drift could be checked by comparing the tone beep against the same tone as heard on an AM receiver running alongside. It was noted that even with the tuning of the R-70 set to the 10 Hz rate it was not possible to set the tone to the exact frequency. The initial error was estimated at about 5 Hz. After about one hour's operation the R-70 had drifted around 25 Hz. Quite a superb effort! Due to the method of frequency generation in the R-70 the total drift should not differ greatly on any other frequency.

INSTRUCTION MANUAL

The instruction manual is good in some respects and very poor in others. Operating information is well covered but while there are details on how to install some of the options, there is no information on the available options themselves. Strange indeed. You will have to chase up the information on the available options yourself. A circuit diagram is included but no other service information at all. For a receiver bordering on the professional class this is poor. Maybe ICOM have a service manual in the pipeline but as I have previously stated with ICOM reviews I have yet to see one for any model.

CONCLUSIONS

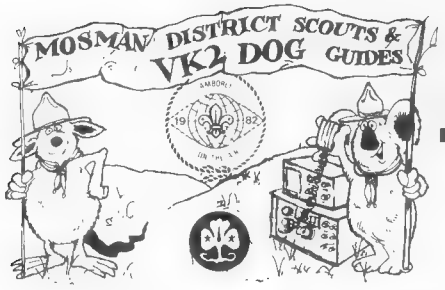
Perhaps some readers might have taken some of my remarks as being rather critical, but in summing up I would have to give the R-70 almost top marks. If you are looking for multiple memories and flashing lights then you will look elsewhere. The R-70 has a solid professional feel. Sure there is room for improvement but after all it doesn't cost $3000 either. If you need a general coverage receiver with first class performance that will still be going well in years hence, then this might well be the one you are looking for.

Our review receiver was supplied by ICOM AUSTRALIA of Duke Street, Windsor, Vic. 3181.

EVALUATION AND ON AIR TEST OF THE ICOM IC R-70 RECEIVER

CATEGORY	*RATING*	*COMMENTS*
Packaging	* * * *	*Excellent quality carton with carry handle.*
Size	* * *	*Reasonable size.*
Weight	* * *	*Quite reasonable.*
External Finish	* * *	*Very well finished and clean appearance.*
Construction quality	* * * *	*Well up to the usual ICOM quality.*
FRONT PANEL		
Location of controls	* * * *	*An excellent layout, plenty of room for everything.*
Size of Knobs	* * *	*Some knobs rather small but control action very smooth.*
Labelling	* *	*SSB reverse and narrow CW confusing, otherwise satisfactory.*
'S' Meter	* * *	*Brightly illuminated. 'S' and Sinpo calibration.*
Status Indicators	* *	*Could use a few more.*
VFO knob action	* * * *	*The best in the business. Three tuning rates.*
Dial readout		
Analogue	NA	
Digital	* * *	*Bright and accurate. Does not show RIT frequency shift.*
REAR PANEL	* *	*Plenty of facilities but no information on how to use them.*
RECEIVER OPERATION		
VFO stability	* * * *	*Hard to fault. See test section.*
Digital dial accuracy	* * * *	*Spot on calibration.*
Memories	*	*Only second VFO useable as limited memory.*
Bandpass tuning	* *	*Reasonable reduction in high end QRM.*
Notch filter	* * * *	*Excellent reduction of heterodyne interference.*
Spurious responses	* * *	*Very clean.*
'S' meter	* * *	*Realistic response with pre-amp in.*
Signal handling	* * *	*No trace of overload under normal operating conditions. But see test section.*
Sensitivity	* * *	*With pre-amp is on a par with contemporary equipment.*
Pre-amp/attenuator	* *	*As above. Pre-amp needed most of the time.*
RF gain	* * *	*Smooth progressive action.*
Squelch	* * *	*Works on all modes. Quite handy.*
Tone control	* * *	*Well chosen response. See test section.*
Noise Blanker	* * * *	*One of the best yet heard. Even works on the Woodpecker.*
QUALITY OF RECEIVED SIGNAL		
Internal speaker	* * *	*Well balanced response.*
External speaker	NA	*No mention made of any option.*
Headphone output	* *	*Stereo Headphone compatible. Some hiss audible.*
Power output	* * *	*Plenty of audio with low distortion. See test section.*
Manual (owner's handbook)	* *	*Lots more information needed.*

**Rating Code: Poor * Satisfactory * * Very Good * * * Excellent * * * *



JOTA (Jamboree On The Air)

Tom Delandre, VK2PDT
JOTA LIAISON FOR VK2
102 Buffalo Road, Ryde, NSW 2112

The 26th JAMBOREE ON THE AIR is scheduled to commence at midnight on Friday 14th October, 1983 and to terminate at midnight on Sunday 16th October, 1983. JOTA is an exercise conducted annually by the Scout Association with the co-operation of amateur radio operators throughout the world.

In a large number of areas it has been an outstanding success whilst in other areas it has been either non-existant or a dismal failure. The results are dependent entirely on the enthusiasm and preparation on the behalf of scouters and amateur radio operators.

Last year I took the position of JOTA liaison officer at the last moment having held off hoping another amateur with more experience would volunteer. I should have known better. They say OLD SOLDIERS NEVER VOLUNTEER.

On contacting the Scout Association I was told to contact Eric Van De Weyer for scouts and Mrs Valda Lambert for guides which I did and I must commend in particular the help and co-operation which I received from Mrs Lambert.

An example of what can be done even at short notice was the result of an enquiry from Mr Colin Taken of the Mosman district scouts. The request for assistance was passed on to the Manly Warringah ARC who immediately got to work on the project.

Today — NOT next week — next month is the time to prepare to participate. I know that at times you meet up with a lack of enthusiasm, should this be the case let me know so that in conjunction with the Scout Association we can endeavour to inspire the necessary enthusiasm in areas not giving these boys and girls the opportunity to participate. May I add that this is not a condemnation of leaders in these areas for they may have their hands more than full with existing exercises and know only to well their limitations.

To participate contact the local Scout or Guide leader and offer your assistance but do insist that suitable supervision by provided by the group concerned for you are the licensed radio operator not a scouting leader, kindergarten teacher or youth counsellor.

Confirm the location at which you will be operating and the number it is anticiated will be participating. Do not take on more than you can capably handle. Liaison with your local scouter as to a firm schedule on the size and times of groups is essential.

The erection prior to JOTA or the careful planning of portable antennas, can be a rewarding exercise undertaken in co-operation with the scouts. Do not overlook the advantage of high gain wire antennas. Quads, yagis, log periodics and the like can all be made up with wire and even if fixed can, with reference to the IPS reports, give quite amazing results if you do your homework now.

Try to arrange some prior instruction for the boys and girls participating on operating procedures. Remember your first QSO how fluent were you at the time, have them prepare some topics on points of local interest to pass on to their contacts — interesting exercises they had taken part in at school, scouting, holidays, travel. Help them over the HM — AR — AR — AND etc. You may not be a public speaker but you have learned something in the art of communication, pass it on, that is what youth and this world needs. *Don't Waffle.*

Amongst the scouters you may find some capable CW exponents, try to foster this art. Have you RTTY facilities? Some of the nimble fingers amongst the guides could upgrade your station.

Another thought on antennas, don't overlook the simple vertical or dipole which has an advantage over beams for local contacts. Did it really matter if your first QSO was over 10 km or 10,000 km. Try to arrange skeds with other participating groups to keep the action going when DX is not on.

Remember in most instances you will need the assistance of fellow licensed operators, make firm arrangements in plenty of time. Never allow your station to be operated without the supervision of a licensed radio operator. Your equipment and your good name are both of real value.

Ensure beforehand that all your equipment is in A1 condition. How long can you operate portable? Have you arranged extra fully charged, back up batteries. Play it safe not only with AC and DC but remember that whilst a nine year old wolf cub may be the perfect radiator of AF he would be a sizzler when it comes to RF.

There are a number of Scout Radio Stations operating in Australia and they run a net on the first and third Sundays of each month. Net station for these nets is VK4SAA with a back up by VK4BNK the frequencies and times are 7.090 MHz 2330 UTC, 21.190 MHz at 0001 UTC, 14.109 MHz at 0030 UTC with 21.190 MHz. Information on scout amateur radio activities will be publicised on these nets.

For information on JOTA liaison contact your division for additional information. Best wishes to all for a pleasant and productive JOTA 1983.

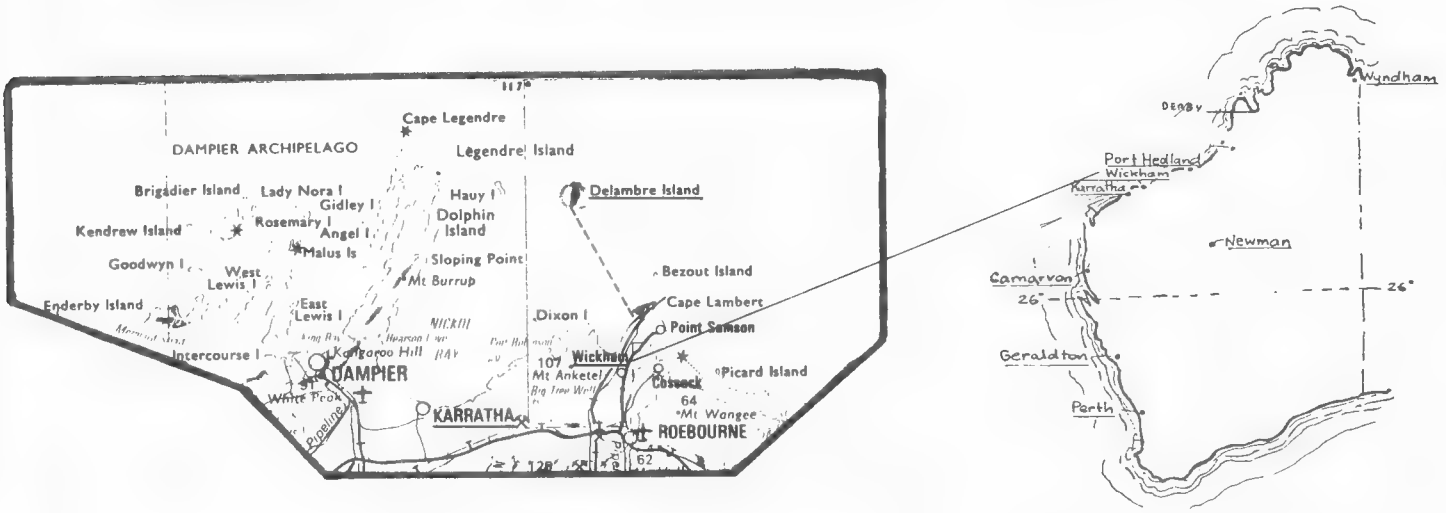
AR

Simon Sebato and friend from 1st Clifton Gardens Cub Pack enjoying JOTA '82 with the help of Manly Warringah District Radio Club.

JOHN MOYLE FIELD DAY ON AN ISLAND

Dennis Hardie VK6KOZ
35 Lawson Street, South Hedland, WA, 6722.

There is a radio club in the remote Northwest of Western Australia, the North West Amateur Radio Society based in Port Hedland with chapters in Wickham, Karratha and Newman. It is one of the largest "clubs" in Australia, not in numbers but in the area covered by our membership from Wyndham in the North to Boyup Brook, South of Perth. The club call sign, as used portable on the weekend, is VK6ANW.



Each chapter runs its own VHF Repeater and a new chapter in Exmouth, with the assistance of the other chapters are in the process of building a repeater to cover that area.

This year the club decided to enter the John Moyle Field Day Contest operating from Delambre Island which is 16 kms off the coast of Wickham at the top end of the Dampier Archipelago.

Most of the organisation was done via the repeaters. There is excellent ducting and contacts, over 200 kms are normal, it is not unusual to talk to Bali in Indonesia.

Repeater Frequencies (MHz) Wickham 146.100/146.70, Hedland 146.400/147.000, Karratha 146.200/146.800, Newman 146.300/ 146.900.

VILLIANS IN THE STORY

Dave VK6ADR, Dave VK6YA, Clement VK6AFA's son, Brian VK6AIH, Dennis VK6KOZ, Mathew VK6NU's son, Mark VK6WV, Peter, Trusty Assistant, Rossco VK6SL's OM, Maria VK6AFA's XYL and Shawn and Craig, the sons of VK6KOZ.

Others who assisted but didn't make the island as the story will reveal were Pattie VK6SL and family, John VK6AFA and family, Ron VK6KRD and family, Norm VK6NU and other son.

THE CAMP

It was planned that the boat "PHOENIX" a 6 m aluminium craft with twin 80 hp outboards and Rossco (VK6SL's OM) in his 6.4 m fibreglass boat with a 200 hp motor would take some people and most of the equipment over on Friday morning. This equipment included three generators up to 3 kw, two tower sections one with winch and pipe extension, five transceivers, two ATU's, extension leads, coax, tools etc, as well as enough camping gear for the expected twenty five people.

Dave VK6ADR and Brian VK6AIH were late into Wickham as their water pump failed near Whim Creek, a famous country pub, Dave VK6YA went out to tow them in. Peter, myself and my two boys went over to the island to start setting up camp. Rossco, the two Daves and Brian arrived two hours later.

The first major task was to assemble the antennas.

THE ANTENNA SYSTEMS

The finished article was made up of the tower with the TH3 at 8 metres and the four element 6 m beam at 10 metres above the sand. The beams were fitted to the rotator after much arguing as to who had put two of the TH3 traps in the wrong place. The whole lot was then lifted using a small but very long block and tackle and guyed back to three star pickets driven into the sand. The wind didn't stop blowing from then on and the system didn't show any sign of giving way. I can't say the same however, about the tents, which needed constant work to keep them on the ground.

On the beach there are two rotary clothes hoists which local fishermen put in to give some shelter for day trippers. One of these was used for the three element 10 m beam which finished up about 4 metres off the sand. Due to the wind we had to tie a rubbish bin to the clothes hoist to stop it turning in the wrong direction.

The five element, 2 m beam was stuck on a pipe and stood near the door of the tent at 2.5 metres above sand.

For working 160 m, 80 m and 40 m we had a random length of wire from the top of the tower to a pipe on a sand dune 100 metres away.

We also had, and used until the wind became too strong, a balloon filled with hydrogen. The wire antenna was to be at about 40 metres above ground which was achieved from time to time. We got reports at 5 x 9 + 20dB on this system where we were only 5 x 9 on the long wire, so the idea was good but not the conditions. The wire

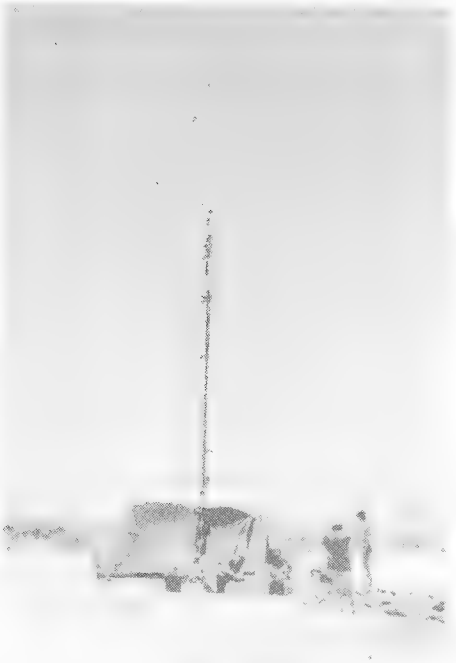
Ten metre beam and weather balloon.

antennas were fed through ATU's.

THE SHACK

At the back of the tent, sorry SHACK we set up a large sheet of plywood on stands for the radio gear.

We have it from a reliable source, Maria, that the shack was very well kept and the sleeping, cooking quarters was like a pig sty. We still believe our priorities are right, we didn't sleep much anyway.



The Tower and Shack.

THE BOAT

On Friday evening, Rossco returned to Wickham for the night. Both boats went so we could pick up Maria, Mathew, Clement and Mark VK6WV at the yacht club.

We were in contact with Mark via the Wickham repeater so we all arrived at the yacht club at the same time. The sea had been getting rougher throughout the day and was running about 1 metre high into the boat ramp which made it very difficult getting Rossco's boat onto the trailer. We left the other boat at anchor and could sometimes hear it hit the bottom. When Rossco's boat was out of the water we loaded gear onto the boat for the trip back to Delambre.

It was dark when we left the yacht club but we had a flood light on the tower to guide us to the island. On the way over we were beating into the waves so the trip was very slow and wet, and we were over half way across before we could see the light at the camp.

It didn't take long to unload the boat, anchor her off the beach and get some hot coffee and food into us.

DISASTER STRUCK

At about 10 PM Dave (6YA) came over and said something looked odd about the boat. When we got the light onto the boat we could only see the silver triangle of the bottom of the bow.

We swam out to investigate and found the bow floating with the motors on the bottom, the boat of course was upside-down.

It didn't take long to get organised. We eased the boat in toward shore on the main anchor which fortunately, was well dug in. We then brought out another anchor from the beach and managed to turn the boat up the right way and run the boat bow first onto the beach. For the next hour we kept the boat pointing up the beach while the tide came in and went out leaving the boat high and dry we found that the bung was missing, it had unscrewed itself hitting rocks on the bottom when at the yacht club.

Equipment washed ashore from the upturned boat.

This whole episode took about four hours and the maximum effort of all concerned, as the waves were breaking onto the beach. The sea didn't calm down until morning.

After a short sleep it was up looking for gear while the tide was out. Surprisingly, we recovered most of the equipment mainly scuba diving equipment. The lighter gear had washed ashore so was easily recovered by the children.

This episode put a damper on the enthusiasm of most of the people but we worked on the principal that as all the radio gear was there and set up we might as well carry on with the contest.

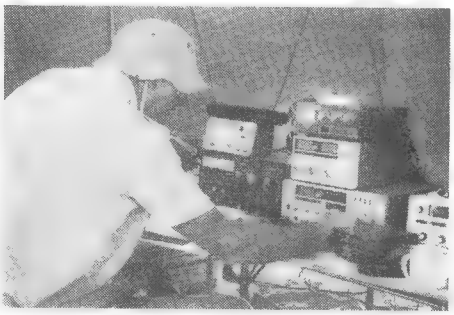
Via 2 metres we advised all the other participants of the problem and asked them not to turn up.

On Saturday Rossco brought out a spare battery and some DWF to flush out the two outboards. We managed to get one of the motors running so we were able to get back to shore under our own power at the end of the weekend.

When Rossco returned to Wickham on Saturday afternoon, he took Dave (YA) Maria, Mathew, Clement, Shawn, Craig and any equipment which was not needed on the island.

THE CONTEST

Throughout the twenty four hours we managed to work about 290 contacts on all bands except 160 m, so our preparation had paid off. The noise levels on the island were very low, which made it easier to hear the more difficult stations. (Heard Island 5 x 9 + on Friday evening.) Our main problem at night was turtles. The baby turtles travelling from their nests to the water were attracted to the lights of the camp. More time was spent taking them down to the water than working the contest but it was an interesting diversion.



Dave VK6ADR operating during the contest.

Within two hours of the contest ending we had broken camp, lowered and dismantled the antennas and loaded the boats. The "Phoenix" on one motor could not reach planing speed so we ran a tow-line out to Rossco's boat and the extra horse-power allowed us to travel at 25 kph. The rest of the return trip was uneventful except we lost Dave's (VK6ADR) car, the water pump had not been repaired as promised and the car was locked in the local service station and of course the proprietor couldn't be found. Dave got his car back the next weekend.

THANKS

Thanks must go to all members of the North West Amateur Radio Society and families for their assistance with organising the weekend.

My personal thanks to those on the island for their help with the boat.

Special thanks to Rossco and Pattie for all the running around on the weekend and the hot shower and meal on Sunday afternoon.

The weekend was an education in more ways than one, for all of us, and it proved again that an amateur in need has many friends, Thank you.

AR

Photographs by Mark Dunning VK6WV

AMATEURS UNITE

Join the Wireless Institute of Australia.

The following article was forwarded to the DX Editor by Ken Hail, VK5AKH. Ken received the article from Baldur Drobnica, DJ6SI, a member of the ill fated expedition to Spratly Island in April. Here in Baldur's words is a full account of the expedition.

SPRATLY ISLAND

© 1983

Baldur Drobnica, DJ6SI

In February 1983 several OM's of the Cologne-DX-Club met to discuss the realisation of a DXpedition to Peter and Paul (PY0P).

DJ3NG and myself doubted if PY0P was sufficiently activated in November 1982. Therefore Gero and I decided to spend our time and money in a different DXpedition. As Spratly was number one in the list of the most requested countries, we chose 1S. Another advantage in going to the Spratly Islands was that there were no tedious procedures obtaining an Amateur Radio Licence. Considering the geographical point it was decided it would be best to realise the DXpedition from Brunei. Many contacts were made with OM's in Brunei. During weekly skeds all chances and possibilities were discussed. At the time it was learned that in VS5 a DXpedition to 1S was discussed for Christmas 1982. We were told that there were no suitable boats in VS5 which could go to Barque Canada.

In the German magazine "YACHT" we found an advertisement of a German captain, who chartered his catamaran from Singapore, and duly got in touch with him, Captain Peter Marx. Additionally we had constant skeds with 9V1WC. We introduced Peter Marx to Henner 9V1WC. The preparations in Singapore were very satisfactory. All heavy equipment was cared for there, such as batteries, generators, canvas, gas etc.

Our journey was originally planned for 21st March, but Captain Marx advised us against this date as the monsoon season lasted very long this year and the wind would blow against us all the time. He preferred 3rd April. On 31st March DJ3NG, DJ4EI, DF6FK and DJ6SI took the plane to Amsterdam and from there to Singapore, to be met by 9V1WC. Together we made last minute purchases, such as masts etc. Henner and his XYL Brigitte took us to a typical Chinese restaurant in the evening. On Easter Sunday we took our equipment on board and left the mooring by 15:00 hours local time. During the next few days we sailed through the Singapore Strait passing the Anambas and North Natunas.

With our equipment and a 15 m and 20 m Dipole (inverted V) we kept in touch with SEA Net, 9V1WC and Cologne as DJ3NG/MM and C53DZ/MM with net control by DK9KN. Weather and excellent cooking were responsible for a good atmosphere on board, but to our dismay the monsoon was still blowing very strongly from the NE, so that the timetable got a little mixed up. After passing the Natunas, ship-traffic grew less and we were soon completely alone. On 10th April we had a very strong wind and were able to go under sail for the first time of the trip.

Unfortunately we could not keep exactly to our chartered course. Destination was Barque Canada at 8° 04′ N, 113° 12′ E. On the way lies Amboyna Cay 7° 53′ N 112° 55′ E. For better control of our course we took Amboyna Cay as a fixing point. A landing was not intended. We were not sure if there was a garrison or similar establishments although the captain had heard in Singapore that there might be Phillipine enforcement there.

From the Singapore newspaper clippings we had collected, we knew that Amboyna Cay was claimed by Malaysia and that they had erected an obelisk on the island to show their claim.

We reefed the sail and made a very slow and careful approach to Amboyna Cay under engine. As we could not see any buildings from this far distance, we had the impression that this sandbar was not occupied. Then came the idea — why go all the way to Barque Canada, we could save 30 SM, as we were already two days behind schedule.

As we approached Amboyna Cay a hut-like building came into sight, and later three antenna masts but without recognisable antennas, but no humans in sight.

At a distance of about 2 km we saw a watch-tower and changed course immediately. We had hoisted the German flag but could not see any flag on the island. As we changed course we saw the first man. He stood on a tower and gave signs with two handsignals (similar to the equipment used at airports for guiding planes on the runway).

As shelling started, we knew, he had focused a gun on us. The first volley fell short. The second round of three shots hit the captain in the right side of the chest, he was bleeding from nose and mouth. He threw himself on to the floor and tried to keep the ship going on course. The third round hit the complete gas-supply of 120 litres (approx 32 gal) which was stored on quarter-deck. Also in this part of the ship were the dinghi and life-belt with flashlight. As we were being fired upon Gero was in contact with Pat, N0ZO/DU2 on 20 m and gave the following message, which should go round the world afterwards: *"We are being shelled — fire on board!"*

Everyone rushed from the quarter-deck to the saloon, then we climbed through the garret outside. We pulled Gero from the equipment and pushed him through the garret also. On fore-deck we found that Diethelm DJ4EI was missing. Who had seen him last and when? It was quite certain that he had not been in the saloon. Had he been standing beside the gas-tanks before the explosion. Had he been shot, was he burnt or had he fallen into the sea? Perhaps all of it. His last words to me were: *"My god, I can't swim."* The ship was ablaze, and poisonous smoke took our breath.

The shelling went on without interruption. While lashing empty gas-barrels together with ropes I was hit on the elbow and blood gushed from the wound. Norbert DF6FK tore a sleeve from his shirt and applied a tourniquet to my arm. He was hit later by shell-fragments. A 70 litre watertank was tied to five empty barrels and were then pushed into the sea, but the wind drove them directly near the dangerous plasticedge. We could not reach them anymore. The heat was now unbearable, and our hair was already singed. We slipped into the water, fetched the ropes with which we had tied the tanks together and thought we could swim like that to Amboyna Cay, and hand ourselves over to the gunmen and be safe.

A new round of shots made it very clear that we were not to be given this chance. Everything should be destroyed. No boat, no witnesses. We would have vanished for ever.

Peter Marx saw our dinghi. A fortunate coincidence had burnt the rope with which the dinghi was fastened to the ship and the dinghi had fallen into the water. Peter asked his wife Jenny if she thought she could get it. In the shelter of two empty barrels, which she held before her, she reached the boat and rowed it in our direction. All climbed aboard. As we were searching for Diethelm we saw the hulls of the catamaran were peppered with shots. We called for Diethelm a few more times, but no sign or sound from him.

Still under shelling we drifted off the coast. At the time of the malicious attack we were south-west of Amboyna Cay. As the wind below from the north-east we drifted away from the sandbar.

After about an hour the firing ceased because of its non-effect. Now the time of summary had arrived. Gero had to explain and repeat his last radio message. Had the contact been confirmed. Yes — Pat had everything OK. Peter believed that the US Airforce should arrive within two hours with a search party. That meant hope. Then we saw to our clothing. Gero, Norbert and I were in swimming shorts. Jenny wore a wrap-around-skirt, Peter was in shorts. Gero was top-less, I wore a yellow snow-shirt and a tiny hat and the others had T-shirts on. Norbert also had a hat but no-one had shoes.

In the boat we found a screw-driver, a preserving-jar, a little basket, a cloth and a plastic-bottle with a cut-off top, for scooping. That was all. The boat had no water! Nothing to eat. No signal-apparatus. Midship underneath the waterline we had a leak, caused by a gunbullet. We stopped the leakage as well as we could with rugs. Every half hour we had to scoop out the water. The sun went down. At that moment it was clear to us that help would not arrive before the next day. It was a long night.

So close to the equator night lasts for twelve hours. A lot of time to ask many questions. How had Diethelm died. Strangely enough there was no debate.

The next day we lived with the hope that a nice big plane would start from Manila, which would drop us life-saving-equipment until they were able to pick us up. The day went by and nothing happened. The next day dawned with calm weather. Flying tuna — no plane. We could not count on ships in this part of the world. Because of its reefs, sandbars and shallow waters it was marked as "Dangerous Grounds" in the sea-charts. Ships pass this area in the far distance as too many have been stranded on the sandbars before.

On the fourth and fifth days it was sure that no-one was searching for us! The thirst tortured us. Gero tried to distill water — without success. Small fish, really tiny ones, swam into our basket. Still wriggling they were swallowed greedily. To our despair we lost the basket. At the bottom of the boat we felt tiny colonies of mussels and scraped them off with our fingernails and sucked them. Gero weakened considerably. His skin was too sensitive and sunburn and shivers tormented him. Clothes were exchanged. Norbert gave his T-shirt to Jenny, she gave her wrap-around-skirt to Norbert and Gero so both had sunshelter during the day and a cover at night.

I unscrewed the machined steel plate which was meant to hold the outboard-engine. Later on we used it as a signal-plate which reflected the sun to draw ships attention to us. The back was used as a diary, engraving the most important events, such as the date DJ4EI died — why does no-one search for us — where was the US Airforce? On the ninth day, by about 13:00 hours local time I had to engrave Gero's death as well. I intended to put the plate back in its place later on, so that when the boat was found it would give hints as to what had happened to us.

During the sixth or seventh night a ship passed, fully illuminated, only about 400 m from us. No chance to give signals. Nevertheless, great joy and rising hope. Now we knew, that the constant north-easterly wind had carried us into the shipping route. But it was too early to rejoice. During the following day, no ship in sight. Another long cold and wet night. We had filled the two diesel-barrels with seawater and used them as a drag-anchor, so the boat went quite steadily. Nevertheless, some waves hit us by surprise in our sleep and for some time we could not find sleep again.

Shortly after sunrise a big ship came along, but it passed and did not see us. As it should happen more than once later on as one or two ships passed that day and another night, and our hopes for rescue fell. Gero's condition grew worse. Again ships during the night and the following day. Then I told all on board that I had heard a voice during the second night — loud and clear — that we would be rescued on our tenth day. We prayed often.

On the ninth day Gero died. It was terrible not to be able to help. Norbert told us, Gero had drunk sea-water during the night. At 14:00 hours we said a prayer and buried Gero in the sea at about 7° 52′ N, 109° 44′ E. Shortly afterwards we saw a big plane without country-index. It flew in circles and we hoped it was looking for us. But its interest was in a Russian trawler which passed by on the horizon. And then night again. The following day ships came only in the afternoon, some of them quite near. The letters "DATSUN" were very clear. A little later a tanker "LPG" only 300 m from us, passed by. No reaction. Norbert was in a very bad state. He had hallucinations. He would not survive the following night. The captain got considerably worse too.

Suddenly a ship very near, only 200 m from us. We waved frantically, even tried to shout. Perhaps someone on deck might hear us. It passed very quickly. Very tired, already resigning, we waved behind her. We had given up, it was already too far away. We prepared for another night. Then Jenny saw it first.

The ship that had passed us had changed its course, had turned 90° and stayed in place. Later we were told that the First Officer YAMADA had seen us and had reported it to Captain INOSE. After he had stopped the engine he had lost us. The ship drew a circle around us, found us again and went into the lee. We went on board via the gangway they had lowered for us.

During all those dreadful days we were not hungry, only the thirst had tortured us. During the first fourteen hours on board the "LINDEN" we drank about twenty litres of water. The Japanese crew of the "LINDEN" cared for us marvellously. The wounds were looked after, cabins were cleared for us, clean beds and clothes were provided immediately. Slowly we picked up condition again. I had lost 15 kg and weighed only 60 kg. Our bodies had scratches and ulcers.

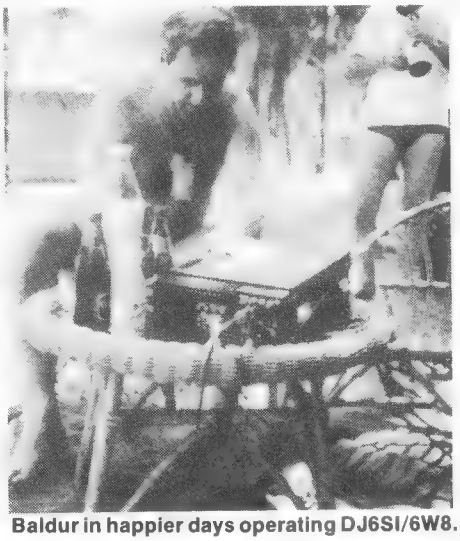
On arrival in Hong Kong we were examined by a physician on board the "LINDEN" then a police patrolboat took us to the harbour and from there in an ambulance to the Queen Mary Hospital. After minor treatment we left the hospital and went to the Hilton Hotel where we received treatment for our wounds by a doctor of our choice. On arrival in Singapore we were welcomed heartily by Henner 9V1WC and his XYL Brigitte.

Besides the grievous loss of our friends we counted up the balance of our material losses.

One OMNIB, one IC 720, one IC 730, one matchbox, one ELBUG, Microphones, Earphones, one two-element Fritzel-beam, one P 50 beam from DJ2UT, two aluminium-masts, Dipole, two 220 V/12 V generators (Honda and Bosch) and many tools etc.

We also lost approx 20 000 DM ($US10 000). Additionally we lost all our clothes and money, in my case $US2000 cash. Also there was flight and charter totalling 5500 DM each. This can all be replaced, but not our dead friends.

I have written to our government on behalf of the whole crew and proposed the Captain and First Officer of the "LINDEN" for decoration for the way in which they reacted and cared for us so marvellously. We will never forget them, and will always be thankful.



Baldur in happier days operating DJ6SI/6W8.

Written by Baldur Drobnica, DJ6SI
Translated by XYL of DJ6AP
© by DJ6SI

AR

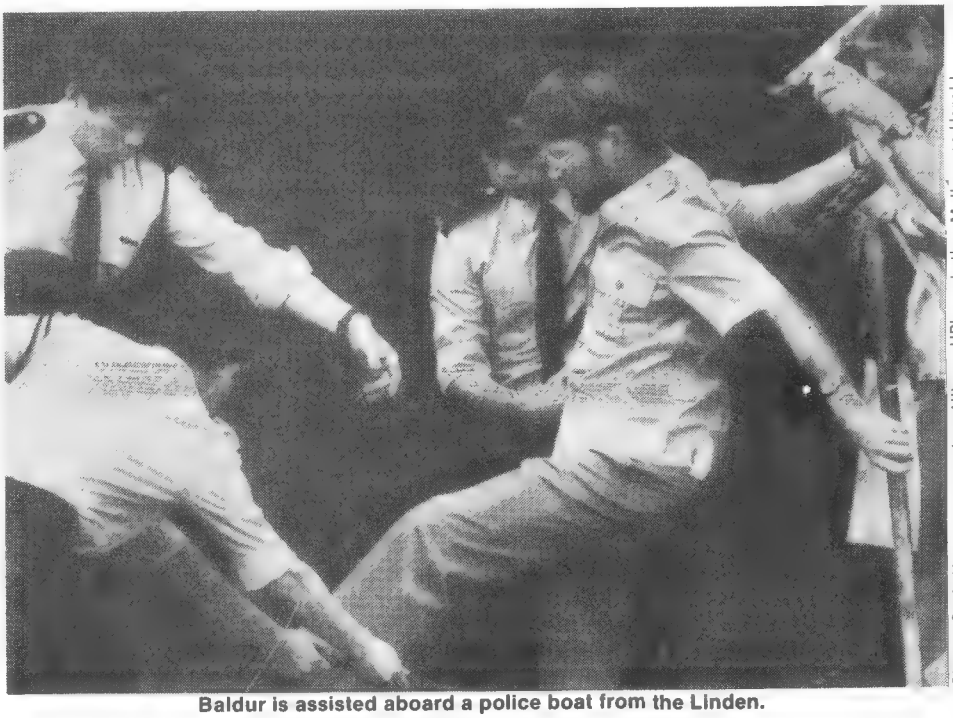
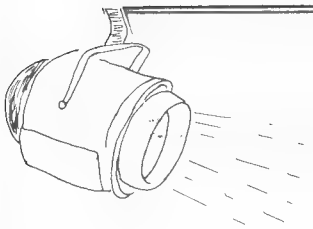
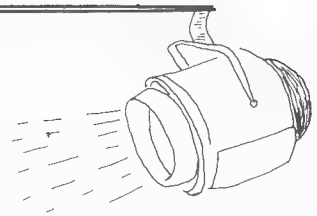


Photo Carl Ho courtesy Joe Hilger UPI and the Melbourne Herald.

Baldur is assisted aboard a police boat from the Linden.



SPOTLIGHT ON SWLing



Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Well, Spring has arrived once again. It is also the start of the S-83 period, which commenced on the 4th of this month from 0100 hours UTC. On this date, the various international broadcasters alter their operational frequencies to take account of seasonal effects of propagation. The months of November, March, May and September and the first Sundays within those months, have been chosen for international stations to make their alterations. Normally, you will not find that too many stations will change their frequency usage that month. Nevertheless, it still is a good exercise to check frequency occupancy. This could indicate that there have been changes, and some of the lowered powered stations, not normally audible, can be often heard underneath the stronger senders.

HF propagation has certainly been disappointing, particularly during the hours of darkness. Signals have markedly deteriorated even further on signals above 11 MHz. When this occurs, it is recommended that you try the lower frequencies, as propagational characteristics on these frequencies are improved even more than during the maxima of the Sunspot cycle. From experience, I find that 3.5 MHz performs very well during the Sunspot minima. The amount of strong ZL stations heard at exceptionally strong levels attest to this. Also many Latin American and Asian stations are heard on the 60 and 90 metre tropical bands, but the African stations are noticeable by their absence. I understand that others have heard them on the long path during our local daylight hours.

On the 6th and 7th of July, I came across a station broadcasting in Spanish on 6.900 MHz. I observed it between 1100 and 1200 UTC and it was not all that loud, which made positive identification almost impossible. I had noticed in overseas DX publications, that many clandestine stations in Central America were heard in the US on various odd channels. Most of these stations heard were broadcasting on behalf of the El Salvadorean guerrilas engaged in the civil war which has been going on for several years there.

Yet the station I was hearing, seemed to be transmitting anti-Sandanista slogans, indicative of supporting one or more groups engaged in trying to topple the Nicaraguan government. The programme had plenty of slogans, mentioning El Salvador, communism etc with many German marches for example "Alte Karameden", which seemed strangely out of place coming from a Latin American station.

I managed to identify this station after Matthew Francis in Hobart reported in the July issue of the "ADXN", the official publication of the Australian Radio DX Club, that he was hearing the station early in June. The station does identify itself as Radio 15 dell Septiembre. Naturally, no addresses are given where reception reports can be sent. Personally, I estimate that the power of the sender must be two or three kilowatts. Their professional style of presentation is also indicative of a permanent transmitting site within Central America.

Recently, I was very fortunate in being able to test out the Realistic PRO-2002 scanner. This model is programmable, via keyboard access, over 50 channels. The frequency range is between 68-88 MHz, 108-136 MHz (AM), 138-174 MHz and 410-512 MHz UHF. It has five memory banks in which you can store the required channels. Power requirements are 240 volts AC or 12 V DC negative ground. Personally, I think the unit is a trifle too large and conspicuous to have in a mobile installation.

Performance from this scanner was very surprising, in comparison with a Regency M400E that I had alongside. In some respects, superior to that scanner. Although I had the scanner hooked up to my two metre ground plane antenna, the set seemed to pick up signals fairly easily. I am sure that if I had a proper VHF/UHF ground plane or discone antenna, I would have obtained better results. The Realistic PRO-2002 is comparable to the JX-200 as the Regency M400E does not have the 108-136 Air band included, and only scans twenty channels.

As I had the unit over a weekend here in Launceston, naturally activity on the various channels was light, except for certain predictable channels. The model I had under test, did not seem to be plagued with those annoying lockouts, that I have encountered with other brands. Naturally, there are some, but not as many as indicated in the manual. The manual itself was written for the American version of this scanner, the main difference being that the Lo-band of 30-50 MHz is included to the 68-88 MHz band on the Australian model.

There are many individuals interested in listening and scanning across the VHF/UHF bands, following on what is happening in their local area. Personally, I am not that interested in snooping around the VHF bands, preferring instead to monitor the range of frequencies between 3 and 30 MHz.

At present, I am evaluating the Tono 9000E communications terminal. Once mastered, it opens up a new world to the SWL and amateur. I realise that some have found the unit too complex, but with patience, I have found it has revealed many and different forms of communications, that were alien before.

In the course of listening between the various international broadcasting allocations, I am sure that you have come across many strange stations and signals. A recent publication has been a help to me in identifying and locating the source of these utility stations. Called the Confidential Frequency List, it has been compiled by Oliver Ferral, Chief Executive Officer of Gilfer Associates, that well-known outlet in the US catering for the needs of the SWL. It lists all the known SSB and CW outlets of the utility stations between 4 and 30 MHz. A companion volume is available with the stations using RTTY, entitled "A Guide to RTTY Frequencies".

I have found this volume an inestimable aid to my utility monitoring. My copy came through the DX club I am connected with, but I believe that they are available either through Dick Smith in Sydney or the Technical Book and Magazine store in Melbourne.

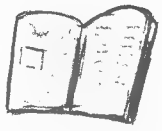
At present, I have been watching the news come in from one of the many international newsagencies on 20.079 MHz. Unfortunately, it is in French, yet I can follow what is being sent, from the lessons I learnt while in school many years ago. I have found VK1MM's article on RTTY frequencies in the April issue of AR very helpful, also.

Well, that is all for this month. Until next time, the best of 73 and good DXing!

Robin VK7RH

AR

MAGAZINE REVIEW



Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

QST. MARCH 1983. Converter and test equipment for 70 cm. (C) Antenna impedance. (NG) Impedance measuring. (P) Baluns (G).

CQ. APRIL 1983. Special Antenna Issue. (G) LCD displays. (G).

CQ. MAY 1983. DX Contest results. (G).

HAM RADIO. APRIL 1983. Cheap Video monitor. (G) Loaded dipoles. (T).

73 MAGAZINE JULY 1983. Morse Code Trainer chip. (C) Heard Island. (G) Special code lover's issue.

AR

AWARDS

Mike Bazely, VK6HD
FEDERAL AWARDS MANAGER
8 James Road, Kalamunda, WA 6076

Awards issued to the 10th July 1983 and DXCC amendments made up to the 21st July are listed below. *Is your call missing?* Maybe it is because you have not updated during the last two years. *Want to get your call back into the lists?* Drop a line to yours truly.

A welcome to Mary Ann, WA3HUP, to our DXCC lists. Mary Anne should need no introduction particularly to those who, like myself, have received QSLs from her. The following DXCC confirmations are in the melting pot. F6FIC/TZ — it is not certain whether a licence was issued to this station prior to the granting of a TZ6FIC licence. The same applies to the first operations by 3X4EX when he was signing LA2EX/3XI. S2BTF had a licence in 1979 and there is some doubt whether this licence was renewed, and therefore his present operation is in doubt. Finally DJ5RT/TT8 — at present there has been no confirmation whether this station received authorisation from the Chad authorities.

DXCC TOP LISTINGS

PHONE

Callsign	Tally	Callsign	Tally
VK6RU	314/362	VK3AKK	299/304
VK5MS	314/361	VK3OT	295/299
VK4KS	314/345	VK6FS	295/299
VK5AB	313/347	VK3AWY	291/295
VK6MK	312/352	VK6YL	291/294
VK7DK	308/327	VK5WO	290/314
VK6LK	308/325	VK3RF	285/290
VK7LZ	307/327	VK7BC	282/287
VK6HD	306/317	VK2AHH	280/307
VK3JF	305/320	VK3YJ	280/281
VK4VC	305/319	VK3DU	279/284
VK4RF	305/318	VK3BLN	279/283
VK4AK	304/314	VK4BG	275/286
VK5WV	301/316	VK3DFD	275/282
VK6NE	300/310	VK4DO	261/282

CW

VK2QL	300/351	VK7LZ	271/324
VK3YD	289/324	VK6RU	261/303
VK4RF	283/307	VK3RJ	259/288
VK6HD	275/290		

OPEN

Callsign	Tally		
VK6RU	314/363	VK5WO	300/329
VK4KS	314/353	VK3AKK	299/304
VK4SD	313/349	VK7BC	298/305
VK6MK	312/352	VK3OT	298/302
VK4RF	311/338	VK6FS	296/300
VK6HD	311/329	VK2SG	292/314
VK7DK	310/329	VK2AHH	286/316
WA3HUP	310/328	VK3BLN	283/287
VK7LZ	309/344	VK4BG	282/296
VK3JF	308/332	VK4DO	270/299
VK4AK	307/318	VK3JI	266/293
VK5WV	302/317	VK5BO	252/286

DXCC NEW MEMBERS

PHONE

Callsign	Cert No	Tally
VK2AXN	316	109/110
VK3BTU	317	101
VK4NML	318	123/124
VK2DTH	319	233

OPEN

VK6RO	219	234/235
WA3HUP	220	311/332

DXCC AMENDMENTS

PHONE

VK2FD	214/215	VK3NSR	238/241
VK2PY	202	VK4AK	304/314
VK2AHH	280/307	VK4BG	275/286
VK2AXN	114/115	VK4DO	261/282
VK2BQS	140	VK4RF	305/318
VK2DPN/M	241	VK5AB	313/345
VK3DS	220/226	VK5WO	290/314
VK3GB	242/260	VK5WV	301/306
VK3OT	295/299	VK6FS	295/299
VK3RF	285/290	VK6NE	300/310
VK3YJ	280/281	VK6RO	233/234
VK3AKK	299/304	VK6YF	155
VK3AWN	209	VK6YL	291/294
VK3AWY	291/295	VK7DK	308/327
VK3NLS	159/161	VK8KRD	156

CW

VK3AKK	181/182	VK5WO	147/152
VK4DO	209/235	VK6HD	275/290
VK4RF	283/307		

OPEN

VK2AHH	286/316	VK4BG	282/296
VK3OT	298/302	VK4DO	270/299
VK3AKK	299/304	VK4RF	311/338
VK3AXQ	163/168	VK5WO	300/329
VK3BLN	176/178	VK5WV	302/317
VK3NLS	173/175	VK6FS	296/300
VK4AK	307/318	VK7DK	310/329

WAVKCA AWARD

Callsign	Cert No		
JH3CGR	1146	WA2VUY	1161
SV1JG	1147	JA7AS	1162
JR2MWZ	1148	WA0JYJ	1163
VK3KPJ	1149	EI8EK	1164
JA4KWU	1150	JA7ADU	1165
JH7NRE	1151	JI1QPU	1166
Y22HC	1152	Z21GJ	1167
KQ7Y	1153	JE2SPW	1168
JA2EGM	1154	JL1GZH	1169
HB9WZ	1155	GI4DQO	1170
JH5AVY	1156	JA2LMY	1171
JI1VVB	1157	HL4XM	1172
JA1CZI	1158	JF1JLW	1173
JA6CBY	1159	JR1TNE	1174
DU9RG	1160	JR3WXA	1175

HEARD WAVKCA AWARD

Callsign	Cert No	Name
ONL-4003	68	E. Herston

WAS (VHF) AWARD

Callsign	Cert No
JF2BKV	154

Well that's about the lot for this month. The compilation of these lists takes up a considerable amount of time. On the positive side, it is pleasing to note the increasing interest in our award programme. Finally I have a few IRCs which I would prefer to keep in circulation rather than cash them at the Post Office. The price is twelve for $5.00 plus SAE.

73 es DX Mike, VK6HD

AR

QSP

"Persecution of the Amateur Radio Service" — A World-Wide Problem

A recent report from the United Kingdom suggests that the social and legal problems associated with the areas of EMC, and aerial mast planning permission are increasing at an alarming rate.

Conflicts with neighbours and local authorities are causing many radio amateurs to resort to a technique of using such innocent looking items as, clothes lines, flags poles, or television aerial feeders, as transmitting aerials.

It is suggested that, the situation is so bad in places, it has almost returned to the 1950's and 1960's. Within the past decade the number of local statutes seeking to restrict the right of members of the Amateur Radio Service to erect antennas — and in many cases to operate at all — has increased dramatically.

With the large amount of domestic entertainment equipment and consumer products being poured into the electronics market by profit orientated manufacturers and import entrepreneurs, who have little regard for EMC factors, or how their equipment will react when in the proximity of other electronic equipment; there is little doubt that the problem will continue, and get worse, as long as governments and authorities are unwilling to provide regulations and legislation to ensure that all electronic equipment complies with reasonable EMC factors.

Lack of effective EMC control over the whole range of electronic products, can only lead to spectrum and social anarchy . . . The world of electronics is growing at a fantastic rate.

from National EMC Advisory Service

AR

GFS Electronic Imports

17 McKeon Road, Mitcham, Victoria, 3132
PO Box 97, Mitcham, Victoria, 3132 Phone: (03) 873 3939, 873 2652
Telex: GFS AA 38053 Cable: "Comimports" Melbourne

MFJ-410 "Professor Morse" lets you . . .

COPY CW FASTER AND UPGRADE QUICKER

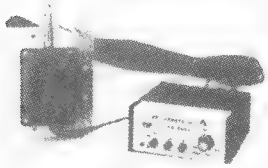
New MFJ Random Code Generator/Keyer sends unlimited random code in random groups for practice. Never repeats same sequence. Tailor level to your ability. Vary speed 5 to 50 WPM. Vary spacing between characters. Speed Meter. Full Feature Keyer.

$233 + $7 P & P

Sends unlimited random code. Never repeats same sequence.
Tailor level to your ability. Vary speed 5-50 WPM.

MFJ ACCESSORIES FOR THE SWL

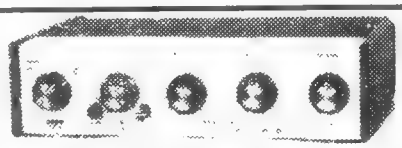
ACTIVE OUTDOOR RECEIVING ANTENNA covering 50 kHz to 30 MHz using telescopic whip.



$233 + $7 P&P

At lower frequencies performance is equivalent to that of a long wire. At higher frequencies it provides gain. Supplied with 50 feet of coax.

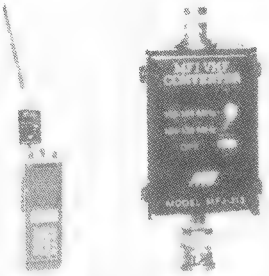
$192 + $7 P&P



MFJ-959 RECEIVER ANTENNA TUNER has low noise 20 dB preamp for weak stations. Match antenna to receiver for maximum signal. 1.6 to 30 MHz. Can use 2 ant., and 2 rcvrs. Select tuner, tuner with preamp, tuner with 20 dB attenuator, bypass. Gain control. Coax, phono jacks. 9-18 VDC 9x2x6 in.

HEAR COMMERCIAL VHF HIGH BAND AND VHF MARINE SIGNALS

on 2 Metre Handhelds with this MFJ VHF Converter.



Scanning

MFJ-313

$88.00 + $5 P&P

New MFJ VHF converter turns your synthesized scanning 2 metre handheld into a hot VHF HIGH band scanner.

144-148 MHz handhelds receive marine on 154-158 MHz with direct frequency readout. Hear VHF commercial stations plus more on 160-164 MHz.

Mounts between handheld and rubber ducky.

Feedthru allows simultaneous scanning of both 2 metres and commercial bands. No missed calls.

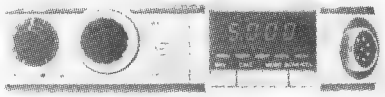
Highpass input filter and 2.5 GHz transistor gives excellent uniform sensitivity over both bands. Crystal controlled.

Bypass/OFF switch allows transmitting. Won't burn out if you transmit (up to 5 watts) with converter on. Low insertion SWR. Uses AAA battery. 2¼x1½x1½ in. BNC connectors.

Enjoy scanning, memory, digital readout, etc. as provided by your handheld on 154-158 and 160-164 MHz bands.

STANDARD C-58E 2 METRE MULTIMODE PORTABLE NOW IN STOCK AGAIN.

Write for a brochure and full specifications.
$377 + $10 P&P
CPB58E MATCHING 25 WATT LINEAR $188 + $10 P&P



NEW C-8900E 2m MOBILE IN STOCK.

* ULTRA SLIM LINE 31H X 178D X 138W cms
* Ga As FET front end, 0.15 uV @ 12 dB SINAD

Write for a brochure and full specifications.

Price $413 + $10 P&P

GFS Electronic Imports

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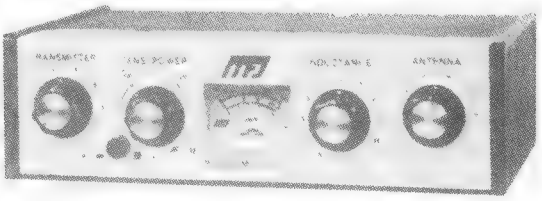
PO Box 97, Mitcham, Victoria, 3132 Phone: (03) 873 3939, 873 2652
Telex: GFS AA 38053 Cable: "Comimports" Melbourne

MFJ
ENTERPRISES, INCORPORATED

ANTENNA TUNERS TO SUIT ALL REQUIREMENTS UP TO 3 kW

MFJ-941C 300 Watt Versa Tuner II

Has SWR/Wattmeter, Antenna Switch, Balun. Matches everything 1.8-30 MHz: dipoles, vees, random wires, verticals, mobile whips, beams, balanced lines, coax lines.



$201
+ $7 P&P

Matches everything from 1.8-30MHz: dipoles, inverted vees, random wires, verticals, mobile whips, beams, balanced and coax lines.

Run up to 300 watts RF power output.

SWR and dual range wattmeter (300 & 30 watts full scale, forward/reflected power). Sensitive meter measures SWR to 5 watts.

Flexible antenna switch selects 2 coax lines, direct or through tuner, random wire/balanced line, or tuner bypass for dummy load.

12 position efficient airwound inductor for lower losses, more watts out.

Built-in 4:1 balun for balanced lines.

Measures 8x2x6".

MFJ-949B VERSA TUNER II

MFJ-949B

$265
+ $7 P&P

MFJ's best 300 watt Versa Tuner II.

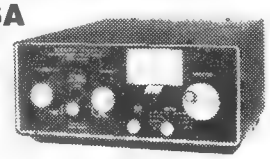
Matches everything from 1.8-30 MHz, coax, randoms, balanced lines, up to 300W output, solid-state or tubes.

Tunes out SWR on dipoles, vees, long wires, verticals, whips, beams, quads.

Built in 4:1 balan. 300 W, 50-ohm dummy load. SWR meter and 2-range wattmeter (300W and 30W).

6 position antenna switch on front panel, 12 position air-wound inductor, coax connectors, binding posts, black and beige case 10x3x7".

MFJ-989 VERSA TUNER V



MFJ-989

$562
+ $15 P&P

New smaller size matches new smaller rigs — only 10-3/4 W x 4-1/2Hx 14-7/8D".

3 kW PEP. 250 pf-6kV caps. Matches coax, balanced lines, random wires 1.8-30 MHz.

Roller inductor, 3-digit turns counter plus spinner knob for precise inductance control to get that SWR down.

Built-in 300 watt, 50 ohm dummy load.

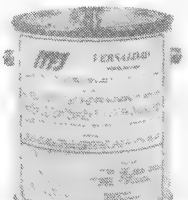
Built-in 4:1 ferrite balun.

Built-in lighted 2% meter reads SWR plus forward/reflected power. 2 ranges (200 & 2000W).

6 position ant. switch. Al. cabinet. Tilt bail.

MFJ DUMMY LOADS

Tune up fast into 50 ohm resistive load. Extend life of finals.



Includes high quality transformer oil.

$58.00
+ $8 P&P

New MFJ-250 VERSALOAD Kilowatt Dummy Load lets you tune up fast. Extends life of transmitter finals. Reduces on-the-air QRM.

Run 1 kW CW or 2 kW PEP for 10 minutes. ½ kW CW or 1 kW PEP for 20 minutes. Continuous duty with 200 watts CW or 400 watts PEP. Complete with derating curve.

Quality 50 ohm non-inductive resistor.

Oil cooled. Includes high quality, industrial grade transformer oil (contains no PCB).

Low VSWR to 400 MHz: Under 1.2:1, 0-30 MHz. 1.5:1, 30-300 MHz. 2:1, 300-400 MHz.

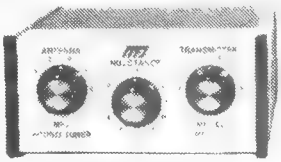
Ideal for testing HF and VHF transmitters.

SO-239 coax connector. Vented for safety. Removable vent cap. Has carrying handle. 7-1/2 in. high, 6-5/8 in. diameter.

MFJ-900 VERSA TUNER

MFJ-900

$125
+ $7 P&P



Matches coax, random wires 1.8-30 MHz.

Handles up to 200 watts output; efficient air-wound inductor gives more watts out. 5x2x6".

Use any transceiver, solid state or tube.

Operate all bands with one antenna.

2 OTHER 200W MODELS:

MFJ-901, $138 (+ $7), like 900 but includes 4:1 balun for use with balanced lines.

MFJ-962 VERSA TUNER III

MFJ-962

$326
+ $15 P&P

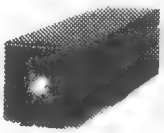
Run up to 1.5 kW PEP, match any feed line from 1.8-30 MHz.

Built-in SWR/Wattmeter has 2000 and 200 watt ranges, forward and reflected.

6 position antenna switch handles 2 coax lines (direct or through tuner), wire and balanced lines.

4:1 balun. 250 pf 6kV cap. 12 pos. inductor. Ceramic switches. Black cabinet, panel.

$100.00
+ $8 P&P
MFJ-262
MFJ-262 (1 kW)



Air cooled, non-inductive 50 ohm resistor in perforated metal housing with SO-239 connectors. Full load for 30 seconds, derating curves to 5 minutes. SWR 1.5:1 for 30 MHz. 3x3x13 inches.

BY-1 PADDLE $78 + $7 P&P

OPTIONAL BENCHER IAMBIC PADDLE FOR ALL MEMORY KEYERS. Dot and dash paddles have fully adjustable tension and spacing for the exact "feel" you like. Heavy base with non-slip rubber feet eliminates "walking."

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

Many amateurs, on achieving the Certificate of Proficiency to operate on the amateur bands, commence DXing with the enthusiasm of a firecracker. Generally, in most cases, particularly the way the bands have been of late, this burst of enthusiasm wanes very quickly and their interest moves to other facets of the hobby.

A few are tenacious enough to stay with it and patiently listen and meticulously scan the DX bands trying to add to their DXCC countries list and reach 100 countries confirmed. You never think that you will make it. How did all those "old timers" ever make 200 and 300 is the question that you ask yourself. Every new country you work, you total up the cards to see if you have missed one that may be claimable.

The dedicated send off cards direct to the QSL route that is nominated as soon as the QSO is finished and the wait begins. Will he QSL? is the question in your mind, you patiently await the mail deliveries and your cards from the bureau. You wonder about each card and when will it be returned so that you may add it to your total. On receipt of any new card the household reverberates with your enthusiasm to continue.

Is it all worth it? I personally think that it is even though my thoughts are that the art of DXing and QSLing are on the wane in this country. Whether this is due to economics, the failure of achieving confirmation for that special QSO and cancerous commercialism that has crept into DXpeditionings, one is not sure.

In this country it is apparent that only a small percentage of amateurs are genuine DXers and in my opinion it is on the decline. This is true if the percentage of VK's that contacted the VK0HI DXpedition is any indication. Is it too hard and time consuming in our modern society where one can relax in front of the TV and watch an entertaining programme interspersed with pet food ads or if they indulged their household in a video recorder, for a nominal rental they can hire any entertainment that their whim desires.

What do the readers of this column think? Do you concur or disagree with my thoughts? Your comments would be appreciated but be warned there is no prize of a free DX credit for any letter received.

ANGUILLA

Still need Anguilla confirmed? Many do and your big chance could be during November and December this year.

The Anguilla Contest Team are going into action again. They will be participating in the CQWW CW DX Contest on the weekend of 26-27 November and in the ARRL 10 Metre Contest on 10-11 December. In between times they will be operational on all bands.

In a note from the co-ordinator Jeff K8ND, he reminiscently recalls the happy QSO's that the group had with VK's on previous visits and

The "shack", antennae and ocean view.

hopes that they can rekindle old friendships as well as creating many new ones.

The callsigns will be VP2E and VP2EV. QSL's can be had through K8ND, 4410 Norwell Drive, Columbus, Ohio 43220 USA.

SMOM

Mario and his group did make an unexpected appearance on the first weekend of July and the deserving who monitor the band were rewarded with a new country. For those that missed out, and there are quite a few, September and October should be rewarding particularly on twenty metres. All QSL's to Mario I0MGM.

POLAND

The authorities allowed the use of the special callsign SN0JP to commemorate the visit of Pope John Paul. Those lucky enough to QSO this station may obtain a special card direct from PO Box 150, Poznan 9, Poland.

MAYBE

The Andaman Islands are again in the news with an application by two VU's to launch an expedition to that area. Many VK's want this rarely occupied country and it is to be hoped VU officialdom can be convinced to give the green light to this venture.

CRITICISM

Many disgruntled operators complain bitterly about the length of time required to get a confirmation from a DX expedition. Probably you cannot make everybody happy all the time but one recent expedition went to a lot of pains to present a first class card for the lucky operators that worked a new country. Perhaps the bemoaning operators talking across town with their linear tubes glowing red didn't realise that the photograph that graced the card had to come back with the logs, be processed, a quality printer had to be engaged and it had to be slotted into his already heavy commitments. The most time consuming operation of the whole exercise was trying to find many entries that were in local time or at times that appeared to be in celestial time and date.

The bumper sticker that is seen on many vehicles this day and age of "Engage brain before opening mouth" is very apt in my humble opinion.

QUERY ANSWERED

Ask and you receive help. This has been the case of a request for details on the CW Net (p35 July AR). Allan VK3AE, has reminded your scribe that full details appeared on p12 July 1974 AR. Rex VK2YA also went to the trouble of explaining how it works and his letter is printed in part to whet the appetite of intending participants.

"I noted your comments on the CW NET in July issue of 'AR' and it may be of interest to know that this net assembles between 0000 UTC and 0200 UTC each Sunday. Each net contains a Net Control Station and he (or she) starts the operation by calling 'CQ CQ CQ CW NET de VK . . . QNI K'.

"As the participating stations break into the net, the NCS allots them a frequency starting with 7.003 and then 7.006, 7.009, 7.012, 7.015 and so on at 3 kHz intervals. Each of the paired stations stays and engages in friendly dialogue. After each pair finishes, they report back to the NCS. If they wish to stay in the net, the NCS re-pairs them and so on until 0200.

"There is no MEMBERSHIP as such. Any AOCP qualified operator can take part. There are no fees and there IS a wide range of operating speeds. However, the 'speed boys' invariably slow down to meet the needs and skills of the others in their pairs.

"A series of 'Q' Signals specially designed for net operation is used. For example, 'QNI?' can mean 'May I join the net?', 'QNX' means 'I want to leave the net now' and so on.

"I might mention that this net has been running for over 520 weeks — which looks to me like 'over ten years'. The leading hand in the net organisation is Eric VK2BII. He arranges for various operators to act as NCS on a roster basis, but, in case there are hitches, Eric is almost always on hand to ensure that the net starts on scheduled time.

"In short, this net is a very worthwhile activity and I can certainly recommend it to all CW enthusiasts. Incidentally, some participants use hand-keys, others use 'bug keys', others use electronic keyers and the more affluent use KEYBOARDS!"

Thankyou Allan and Rex for your interest and what about joining Eric VK2BII in the near future. You will be made very welcome.

KERMADEC AT LAST

Warwick ZL3AFH, a DXer and island hopper for many a year has been assigned to the Kermadec Islands weather station.

Kermadec has a high priority on the wanted countries list of many amateurs in VK an overseas countries so he is going to be kept very busy.

Remour has it that he will arrive this month but will not be QRV on a regular basis until around Christmas time. If he is active before the New Year it will be a nice Christmas present for the lucky ones.

PRIBILOV ISLANDS

This island group is located about 500 kilometres north of the Aleutians and about the same distance from the mainland of Alaska. Presently this group is classified as the Aleutians and previous applications for separate DXCC status have been denied due to the 800 kilometre rule.

There is a new move a foot for another application and proof will be tendered to Newington that the Pribolov Islands are geologically distinct from the Aleutians, in the hope that the 400 kilometre rule applies.

Well here's hoping for a new one and the Alaskan DX Association are planning a visit there this month. If you hear them, work them, and then cross your fingers. I personally will not hold my breath awaiting a positive answer as there would be no DX column next month.

CHRISTMAS IS COMING!!

With it getting to that time of the year again, it was thought that a mention regarding the posting of mail to overseas friends was in order. This being beyond my capabilities it was time to call in the experts and no expert could be better than the amiable and obliging Public Relations Manager of Australia Post, Jim Foley.

In Jim's words, here are a few words of wisdom —

Christmas might still seem light years away but now is the time to be thinking of overseas parcels and cards. Some forward planning can mean that advantage can be taken of surface postage rates.

Australia Post, on Wednesday 14 September, will bring out its overseas surface rate stamp for Christmas cards. This stamp will have an unusual aspect this year as will the domestic and overseas air mail stamps to be issued on 2 November. The three stamps were produced from designs produced by winners of a national contest.

The competition asked primary school children to illustrate "what Christmas means to me" and many thousands of entries were received.

The overseas surface mail stamp is intended for cards carried by surface mail to overseas countries. Around the time of the stamp issue, Post Offices will have supplies of a pamphlet that lists, in detail, the closing times for overseas surface mails.

Please ensure that your cards are properly addressed bearing name, street number, street name, town, state, country and postcode, where applicable. Each year thousands of Christmas cards are destroyed because of insufficient or no address.

Write your name and address on the back of the envelope so it can be returned to you if it cannot be delivered.

When buying cards, ensure that they are in standard size envelopes because articles larger than this cost more to post. Post Offices can supply letter gauges to help customers ensure their mail conforms to standard size requirements.

So, by posting in time to catch overseas surface mail deadlines and using standard size envelopes, you can keep your postage costs down.

Parcels should be carefully packed because they need special protection from the pressure of travel. Sturdy containers well packed with cushioning materials such as shredded paper, wood, wool and cellulose should be used. Parcels containing heavy items should be wrapped with heavy paper, and all parcels should be well sealed with tape and tied with cord. Again, Post Offices can provide brochures and advice to assist with packing and can also advise on articles that cannot be sent through the Post such as matches and flammable substances.

One overseas parcel facility worth special mention is the Surface Air Lifted service.

SAL is particularly suitable for heavier packets and parcels and, by using road and air services, costs more than surface mail but less than air mail.

It provides a mail medium speed delivery of around two to three weeks. Your Post Office can give details of countries serviced by SAL.

Should you miss the surface mail closing dates, Australia Post later produces a brochure giving details of the closing times for air mail.

TRISTAN DA CUNHA

That hard to come by country is quite active with four amateurs proliferating the airwaves. Calls ZD9CB, ZD9BW, ZD9BX and a YL ZD9CS have been quite active on the bands.

CALLSIGN CHANGE

From November until the end of December this year, the prefix 6V will be used in lieu of 6W8. Also for the prefix hunters, this country, from this date, will use figures to distinguish the eight counties from 1-8. Figure 9 will be reserved for club stations and figure 0 for visitors.

FALSE START

Apparently the USSR has not yet released any of the WARC bands. QSL cards have turned up in the United Kingdom remarking that it was a mistake!!

NEW SOVIET OBLAST

It is understood that the Soviet Oblast system has had a change or two with the forming of a new oblast by dividing an existing area into two. Any reader have any details on this one?

NEW PREFIX BLOCK

The FCC have allocated the new prefix back of KP5 for Desecheo Island.

TRIPPING AGAIN

Jan and Jay O'Brien, publishers of the W6GO/K6HHD QSL Manager List are planning to return to French Polynesia in November. This time they plan to be armed with two stations and Jay hopes to concentrate more on the CW mode and particularly on 40 and 80 metres. Whether it is the DX or the tropical fruit that appeals to this happy twosome is unknown but they should continue on to VK to meet some of their friends. If not this time Jan and Jay what about next time?

PETER 1ST ISLAND

Well it has been bandied around for a while as to whether it will or not be accepted. W1AW made an announcement that it will now be accepted. This, because of its co-ordinates, could prove to be a difficult and hazardous island to get to. Who will be the first to mount an expedition there is the big question?

AMSTERDAM IS TO DJIBOUTI

Alain FB8ZQ, enroute to his homeland will call at Djibouti and will be operational in November as J28CB.

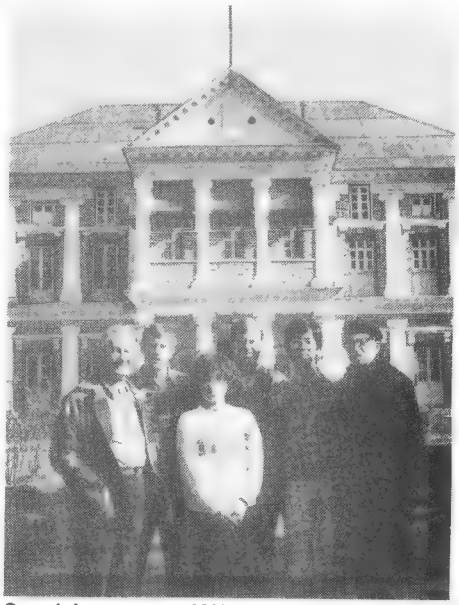
TREKKING AROUND NEPAL

A chance remark by Ms Julie Lane, the Laser Scanner operator that produces the colour separations for the front cover of Amateur Radio, regarding a proposed trip to the foothills of the Himalayas, brought the remark from me that no trip could be complete to that area without a visit to Fr Moran 9N1MM, the pioneer of amateur radio in the country.

Arrangements were made with Moran via catching up with him on the South East Asia Net and Julie's invitation was confirmed.

I will leave Julie to tell her own story of this interesting personality located in the fascinating country of Nepal.

To the SE of Kathmandu is the village of Godavari. It was here that I met Father Marshall Moran. Fr Moran was born in Chicago in 1906 and went to school at St Ignatius High and later Loyola University. During 1924 he entered the Jesuit order and in 1929 headed to India where he began his career in Asia as a teacher. After a brief visit to Nepal in 1949 Fr Moran returned in 1951 and has lived there since May of that year. He has established several schools in Nepal, including St Xaviers at Godavari and St Marys at Patan.



Special gang at 9N38MM celebrating the King's 38th Birthday. L to R: K7AW, W6OAT, VU2YOU, 9N1MM, JI2VLV and JM1RFT.

When I arrived Fr Moran was having a typical day — flat out! Apart from being administrator of St Xaviers he is involved in several community affairs and of course his interest in amateur radio, which goes back to his student days when he made radio receivers for the neighbours. All this contributes to a hectic lifestyle, not a bad effort for a seventy seven year old.

Having spent six weeks in Nepal I can appreciate why Fr Moran chose to live there. Kathmandu, the capital city, is an adventure

A view of the countryside from 9N1MM's QTH.

The famous Monkey Temple in Kathmandu.

in itself. In the old section of the city you can wander through the street stalls that sell everything from handmade Tibetan carpets to false teeth. If you require public transport, the bicycle rickshaws race through the narrow dirt streets, dodging cars, beggars, tourists and cows, adding to the already chaotic scene.

suitable to most age groups and levels of fitness. If you can manage one of the longer treks it is worthwhile to experience the immensity of the mountains at close range. The views are utterly staggering and when the rhododendron forests are in bloom it's a breathtaking combination.

Julie waiting outside the dentist's for the bus to Godavari. (Note the ready to wear prosthetic teeth on display in the window.)

Napali Natives.

Eating your way around Kathmandu is a pleasant way to spend a few days at minimal cost. There are a variety of restaurants that have international cuisine and the traditional Nepali food. Of course the pie shops are hard to avoid with their mouth watering selection. One way to loose a bit of weight after eating so well is to go trekking.

The variety of area to trek in makes it

The Napali people are most hospitable and welcome trekkers to their villages, I don't think you could meet a happier and more genuine people than the Nepalis and Tibetans. The only thing wrong with Nepal is that it instills the urge to return, hopefully that won't be far off.

Thankyou Julie and perhaps we could have an update on your next visit which it is believed will take place when leave and funds can be accumulated.

CW SWLING WITH ERIC L30042

28 MHz
VK3AZW, VK6JQ, WA6HXM.

24 MHz
VK3LC, VK3RJ, VK5GZ

21 MHz
A35RZ, DL2OY, EC3BPS, FK8CE, FK8EH, HL1NK, HR1RC (0135z), HZ1AB, JR8AKR, JA5XDX/MM, KX6QC, OH3BM, KD1M, W5MBY, W6QHS, KW7L, KA8SIG, YC2BDJ, ZL4PA.

18 MHz
VK3LV, VK3LC, VK3MR, VK3RJ, VK3ML, VK3XB, VK3ZJ, VK4AIX, VK4BG, VU2REC (0700 z), VK5GZ.

14 MHz
DJ2BE, N0ZO/DU2, G6ZY/EA6, FK8CC, FO8JM, GJ4/PA0BFM, GJ4/PA0ERA, HL2GW, OH0AM, OK3AL, PY1FB/MM, T05RS, UC20Q, UK2FBR, UK7FAP, XE1FAO, YB5ASO, 4J4F, 4K1QAV, 4N90LY.

10 MHz
ZL2BKM/C, DJ2CK, F3NB, FK8CE, FO8FO, FG0DDV/FS, G2BY, GM3GJB, JA6HW, JA7EYL, KP2J, WP4CBB, OK1DAV, PA3CRV, VP2KBM, W (all dists), XE1RM, Y25KH, DL2GG/YV5, 8P6AU.

7 MHz
CT1OQ, DK0TU, EA7JA, EA8RL, FK8CE, HA1XW, HP3FL, I2UIY, LZ2KAF, OH3ES, SM7ALC, SP3AAK, PY6BK, TI2PZ, UA1JN, UB5ZEQ, UK4CCC, UK5IBB, UP2BKZ, UU2M, VP2MM, YU7QDT, YV5ANT, XE3ARV, 4N4WF.

3.5 MHz
FK8KAA/P, G3CCZ, OH3YI, SM6CPY, UA1AUW, UA4ANT, UA9ACZ, UA9CBM, UK5ICX, UD6DHM, UQ2GCN, UQ2GFA, UU2M, VK9NS, K0FX, YUIER, ZS2WV.

1.8 MHz
VK1BB, VK2BH0, VK2DPS, VK5KL, VK7BC, VK9NS, W7TJ, VK3BVS, VK3DGJ, VK3DRX, VK3RW.

RECENT QSL CARDS RECEIVED

C6ABA, C02JM, EA6BD, FY7BO, GB2RN, DJ2CS/HB, HB0BHA, LU9EIE, RA9UM0, T30CH, UF6CR, VC3FRA, VK0HI, YC2BDJ, 4Z4OM, 5N7HKR, 9J2BO.

WORKED ON THE EAST COAST

21 MHz
3D6AN, 4X6DF, 5H3DM, 5N3RTF, 7PCG, 7Q7LW C21RK, CT3BM, FB8WI, FB8ZQ, FM7CD, FM7CD*, FR7ZM, FR7ZN, TG9NX, TL8CK, TL8ER, TR8IG, TT8AD*, VU2AUS, VU2TN, YT3N, Z23J0, Z24JS, ZS2SI, ZS3GB, ZS5DX.

14 MHz
1A0KM, 3X4EX, 5N3RTF, 8R1Y, 9N1NL, A71AD, AP2MQ, C21BD, C21RK, C30LAB, C53DF, C6ANI, CN8EL, C07AM, CS2AK, CT3BM, EA8XS, EL2AD, EL2BE, FB8XI, FG0HYJ/FS7, FK8EB, FM7CD*, FO8BI, GU4UN, H44DX, I8UDB/ID8, J6LB, KX6OR, OA4IZ, OH0BT, OK1ALQ*, SP9AID, T77B, TL8ER, TR8CR, TR8JLD, TZ8DC, UF6FE, UK2GAH, UQ2BQ, VE3NDQ*, VK0VK, VK2AGT, VK9ZS, VP2VD, VP9CP, XT2AU, ZB2J, ZL4OY/C

LOWER BANDS WORKED ON THE WEST COAST

4U1UN+, UA0KBC*++, UA0LFU*+, VK5BI +++, VK9NS+++, VU2MDM*+, XE1J+, XE2ADI*+.

* Denotes CW
\+ Denotes 7 MHz
++ Denotes 3.5 MHz
+++ Denotes 1.8 MHz

THANKS

In compiling this column information from such magazines as KH6BZF REPORTS, RADCOM, QSL MANAGERS LIST, WORLD RADIO, QRZ DX, VERON, DXEXPRESS, QRZ DX, DX NEWS SHEET were used together with reports from VK's 2PS, YA, 3AE, BY, FR, PA, YJ, YL, UX, 6FS, NE, YF, SWL 30042 and Ms Julie Lane. Amateurs from overseas countries who have contributed include G3NBC, I8SAT, ZL1AMM and ZL1AMN. Sincere thanks to one and all.

AR

INTERNATIONAL NEWS

AM MOD NAISEANTA
MOD DHAIL CHLUAIDH

Se Feis Bhliadhnail de cheol agus litreachas na Gaidhlig, a tha ann am Mod Naiseanta a Chomainn Ghaidhealaich Bhon a chaidh a cheud Mhod a chumail anns an Oban, ann an 1892, tha e air a bhi an iomadach baile air feadh Alba Ged a bha am Mod an Glaschu agus ann an Cille Bhride an Ear cha robh e riamh ann am Motherwell agus bi e a cur iongnadh air daoine carson a tha e a tighinn do bhaile a tha cho Gallda agus a tha cho ainmeil airson gnìomhachas agus gach toit is smuid a tha na lurb

Ach ann an Dal Chluaidh tha Comainn air a bhi aig na Gaidheil o chionn iomadach bliadhna. An deidh a cheud chogaidh, bha agio ba iomain, coisir, clasaichean agus seirbheisean ann an Gaidhlig acs. An diugh tha Comainn Aig Na Gaidheil ann an Cille Bhride an Ear, Leanndrais, Hamilton, Carluke agus Motherwell. Ann an Slorramachd Lanntrag tha Gaidheil air am buaidh a thourt air gach dreuchd mar a tha foghlum, am poileas agus na h - eaglaisean. Is docha gun toir am Mod cothrom do na Goill na Gaidheil an a phaigheadh le bhi a'toirt gach cul-taic as urrainn iad do an canan gdo an ceol.

Agus feumar a radh gu bheil moran uidh agus meas air fhoillseachadh do'n Ghaidhlig agus do'n Mhod. Tha moran cuideachadh air tighinn bho chomharlean sonadail, gnìomhachas, luchd malairt agus bho dhaoine an aid san so.

Mar sin, tha ann cinnteach gum bi Mod Dhail Chluaidh tlachdmhor agus inntinneach agus gum faic ann daoine aig a bheil speis do'n Ghaidhlig a' cruinneachadh ann am Motherwell, as gach cearn de'nt - saoghal.

THE NATIONAL MOD
MOD OF THE CLYDE VALLEY

The National Mod of An Comann Gaidhealach (the Highland Association) is an annual Festival of music and literature. Since the first Mod was held in Oban in 1892, it has been held in many towns throughout Scotland. Although the Mod has been held as far south as Glasgow and East Kilbride, it has never been held in Motherwell Many people will question the fact that it is coming to such an industrial town in the Lowlands, so well known for heavy industry and an image of smoke and pollution

However, in Clydesdale, there have been Highland Associations for many years After the first World War, the Lanark Highlanders had a Shinty team, classes, a choir and church services in Gaelic Today there are Associations in East Kilbride, Lanark, Hamilton, Carluke and Motherwell In the area covered by the old county of Lanark, Gaelic speaking people have had considerable influence in many walks of life, such as education, the police and the church The Mod gives Lowlanders an opportunity to repay those Highlanders, by giving every possible support to their language and music

It is obvious that there is a tremendous amount of goodwill for Gaelic and the Mod. Much help financially and otherwise has come from District Councils, from commerce and industry and from individuals

Therefore it is certain that Mod Dhail Chluaidh will be enjoyable and interesting, with people, who have a love of Gaelic, gathering in Motherwell from all parts of the world.

Special QSL Card.

SPECIAL EVENT STATION GB2MOD

GB2MOD is associated with the National Mod of Scotland which is an annual festival to encourage the study and practice of national songs, poetry and the Gaelic language.

This year, the Mod will be held in a town called Motherwell — situated in the Clyde Valley area of the Central Scotland — and will be known as the MOD OF THE CLYDE VALLEY.

A special event station — GB2MOD — will therefore be active from the town of Motherwell during the period 8-14 October, 1983. The station will be continuously operational as propagation allows on these frequencies, when clear.

CW	*28.07*	*21.07*	*14.07*	*7.02*	*3.57*	*MHz*
SSB	*28.51*	*21.31*	*14.21*	*7.06*	*3.67*	*MHz*

A special event QSL card in both English and Gaelic languages — financed by Motherwell District Council — will be available for all contacts via the Bureau or direct on the receipt of the appropriate IRC's and addressed envelope.

It is hoped that as many amateurs as possible will make contact with this special event station thereby allowing the Mod's fame and success to be international as well as national.

Further details from: GM3PXK, Mid Lanark Amateur Radio Society, Wrangholm Hall, New Stevenson, Motherwell, Scotland.

USA AMATEUR RADIO STATION CALLSIGN ASSIGNMENT SYSTEM

All callsigns available for assignment to amateur radio stations by the FCC are arranged in lists according to the sequences given here. Callsigns are selected for assignment from these lists.

When all callsigns within a block have been assigned, the next assignment is made from the next consecutive block within the group.

The callsign format consists of the prefix, followed by the single digit, followed by the suffix.

The callsign prefixes can be one or two letters. Single-letter prefixes are either K, N or W. Two-letter combinations are either AA-AL, KA-KZ, NA-NZ or WA-WZ.

Some two-letter prefixes are not listed. WT is used for temporary licenses, WC-prefixed callsigns were assigned to Radio Amateur Civil Emergency Service (RACES) stations prior to March 1978 (no new RACES Licenses are now issued; however, existing licenses may be modified and renewed). Additionally, some two-letter combinations are assigned by other US Government authorities to amateur radio stations not under FCC jurisdiction.

The digit is a single number, 0 through 9, indicating a geographical district.

The suffix can be one, two or three letters. Single-letter suffixes are A-Z. Two-letter combinations are AA-ZZ. Three-letter combinations are AAA-ZZZ. As in the case of the prefix, and for similar reasons, some combinations are not used.

Group A Callsigns (Extra Class)

Block no.	*Contiguous USA*
*1	K#$$
*2	N#$$
*3	W#$$
4-13	AA#$-AK#$
14-36	KA#$-KZ#$
37-59	NA#$-NZ#$
60-82	WA#$-WZ#$
83-92	AA#$$-AK#$$
93	Group B

The following prefixes will *not* be assigned to stations in the contiguous 48 states: AH, KH, NH, NL, NP, WH, WL, WP. Pacific-area stations will be assigned AH#$, KH#$, NH#$, WH#$, then Group B. Alaska-area stations will get AL7$, KL7$, NL7$, WL7$, then Group B. Atlantic-area stations will be assigned KP#$, NP#$, WP#$, then Group B.

Group B Callsigns (Advanced Class)

Block no.	*Contiguous USA*
1[1]	KA1$$
2-23	KB#$$-KZ#$$
24-46	NA#$$-NZ#$$
47-69	WA#$$-WZ#$$
70	Group C

[1] KA prefixes will be assigned only to persons living in the first call district. Other KAs are assigned to US personnel living in Japan. The following prefixes will *not* be assigned to stations in the contiguous 48 states: KH, KL, KP, NH, NL, NP, WH, WL, WP. Pacific-area stations will be assigned calls in the format, AH#$$, Alaska-area stations, AL7$$, and Atlantic-area stations, KP#$$. Once these blocks are used up, assignments will be made from Group C callsigns.

Group C Callsigns (Technician and General Class)

Block no.	*Contiguous USA*
*1	K#$$$
2	N#$$$
*3	W#$$$
4	Group D

Pacific-area stations will be assigned KH#$$, NH#$$, WH#$$, in that order; Alaska-area stations KL7$$, NL7$$, WL7$$; Atlantic-area stations NP#$$, WP#$$. After these are depleted, Group D will be used.

Group D Callsigns (Novice Class)

Block no.	*Contiguous USA*
1-23[1]	KA#$$$-KZ#$$$
24-41	WA#$$$-WZ#$$$

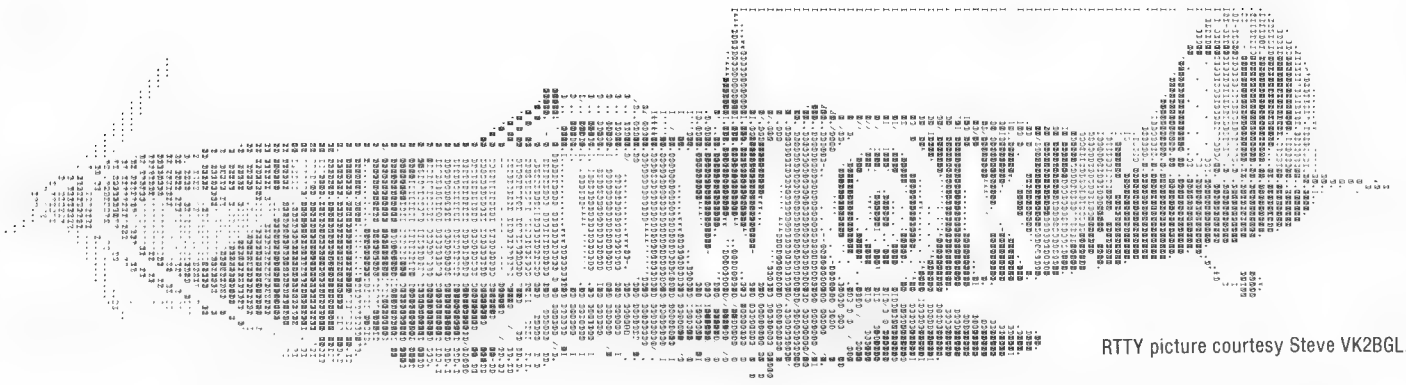
[1] Except KC4AAA-AAF and KC4USA-USZ.

The following callsign formats will *not* be assigned to stations in the contiguous 48 states: KH#$$$, KL#$$$, KP#$$$, WC#$$$, WH#$$$, WK#$$$, WL#$$$, WM#$$$, WP#$$$, WR#$$$, WT#$$$. Pacific-area stations will be assigned KH#$$$, WH#$$$; Alaska-area stations KL7$$$, WL7$$$; Atlantic-area stations KP#$$$, WP#$$$.

* Callsigns using these prefixes are not currently being issued.

from QST June 1983

AR



RTTY picture courtesy Steve VK2BGL.

HERE'S RTTY!

Bruce Hannaford, VK5XI
57 Haydown Road, Elizabeth Grove, SA 5112

THE RTTY DEMODULATOR

In the "AM" days I remember the oft repeated statement "*If you can't hear them you can't work them*". Updating this to the RTTY era "*If you can't print them you can't work them*". In both cases these statements underline the importance of first correctly receiving the signal. With RTTY, part of correct reception is dependant on a suitable demodulator. There are plenty of good receivers available but some demodulators leave much to be desired. The demodulator converts the audio tones from the receiver into DC pulses either to work a mechanical printer or a computer type unit. The requirements of a good demodulator are much more stringent for HF bands than for VHF/UHF bands. The main difference being due to selective fading on the HF bands. With selective fading of a FSK signal the mark and space transmissions fade independently, some of the time mark will be strongest and at other times space will be strongest. If the demodulator design is such that it must have both mark and space signals present at a reasonable level to operate successfully, then very little will be printed from such a signal. If the demodulator can work from either mark or space or from both, then all will be received so long as at least one signal is coming through at a reasonable level.

Of course all the information necessary for correct printing is contained in either the mark or space signals so by transmitting both this gives the receiving station two chances instead of one to get a good printout. This dual transmission and reception system is similar to a diversity system and of course is superior to a single system when receiving conditions are bad.

Most of the remarks to follow will refer to HF band FSK working but the same demodulator can also be used with AFSK on the VHF/UHF bands. In this short description I will only cover rather basic points sufficient to give a ground work understanding of demodulators.

The term demodulator is now in common use but in some cases the name converter or terminal unit is used. Adding to the name confusion there is, on the market, a unit containing both a modulator and a demodulator and this is referred to as a demodulator. In computer jargon such a unit would be called a modem coming from MOdulator DEModulator.

Before we get into the workings of demodulators let's give some thought to the HF receiver that will be providing the audio tones to work the demodulator. Firstly, it must have very good frequency stability and band-spread tuning, as the tuning of FSK signals is more critical than that of SSB or CW. Secondly, selectivity a little sharper than the usual SSB bandwidth is helpful. The fitting of a 500 Hz CW type filter will give better copy where noise and QRM are a problem. However, first check that with such a filter fitted to your transceiver you can still receive audio tones suitable for working your demodulator. In some cases you may only be able to receive audio of around 800 Hz intended for CW work. Normally the filter would be plugged into a SSB filter position rather than a CW position to give suitable audio out frequencies. In some cases it may be necessary to detune the carrier oscillator to centre the mark space tones into the filter pass band.

In the early days of RTTY, when a shift of 850 Hz, valves and mechanical printers were the normal thing, a very simple FSK demodulator was sometimes used. To introduce practical demodulators we will first consider this primitive system.

Looking at figure one, the audio transformer steps up the audio from the receiver loudspeaker voice coil to the grid impedance giving a large voltage step up at the same time. The diode rectifies the audio and presents a negative voltage to the grid. A reasonable level of audio will produce enough negative volts to completely cut off the switching valve plate current. Thus with audio present the current though the printer electro magnet coils will cease and with no audio input the valve will have no bias and will conduct, allowing current to flow through the printer coils. The value of this printer current is controlled to the correct value by a suitable setting of the screen voltage.

To operate the system the receiver was tuned to zero beat on the mark signal and then only the space signal was present to produce RTTY audio output switching the valve on and off. This would work out quite well if signals were good with very little noise present. However, if there was noise present it would act as a space signal and cause many misprints.

An improvement could be made by tuning the secondary of the input transformer to 850 Hz to favour the space tone being used with mark on zero beat. The current through the printer coils was unaffected by the level of signal input as large signals just produced more valve cut off bias voltage than was necessary. With no signal input the valve current would prevent the printer from

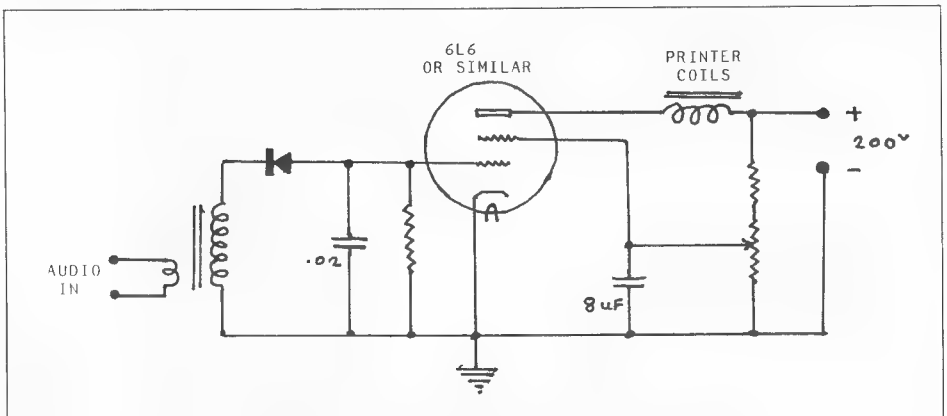
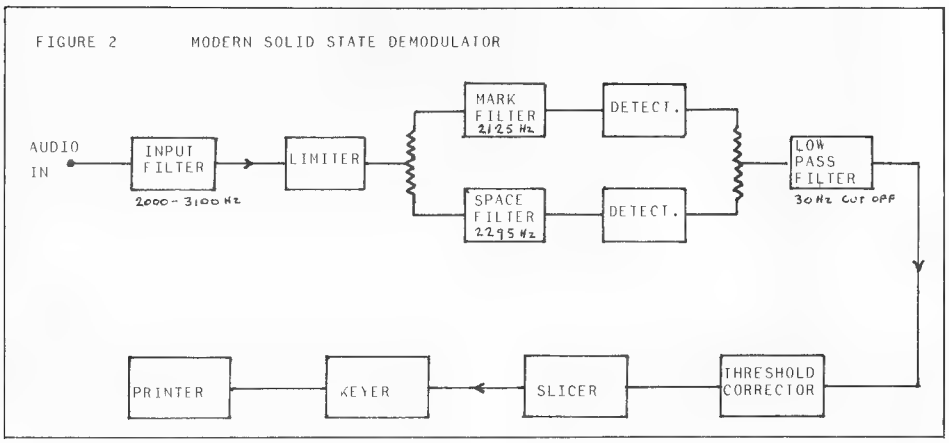


Figure 1



"running open" holding it at rest ready for the next incoming signal. Even with the tuned input circuit the results were poor as only the space tone was used and to get best results both tones should be used.

We will now look at a modern solid state system and note the improvements obtained. In figure 2, for simplicity sake, we have made this a fixed system using high tones with 170 Hz shift. The 2125 and 2295 Hz tones from the receiver will pass through the input filter and most of the other audio frequencies from the receiver will be rejected by this band pass filter. The limiter prevents overloading of the mark and space detector systems and any signal of a reasonable level will saturate it and thus give a constant output level. A mark signal will pass through the mark filter and be rectified by the detector, likewise with the space signal, the space filter and the detector.

One detector is connected to give positive output voltage and the other to give negative output voltage, as both outputs are combined, if some audio passes through both filters at the same time the strongest signal will determine the output voltage polarity. In normal operation mark may for example produce positive and space negative and thus the output will be rapidly switched from positive to negative as a RTTY signal is received. These DC pulsed signals will pass through the low pass filter, which will reject any high frequency audio and prevent any problems it may cause further on. As the mark and space signals may not always be the same amplitude or one may even be completely absent at times, this could cause problems and should be corrected. The pulses from the low pass filter are fed into the threshold corrector, which restores the balance of the mark and space signals when necessary. For example, if mark were twice the level of space at a given instant the threshold corrector would make both equal in amplitude at its output. This is obviously a very useful function and the device is indeed remarkable in its operation. It would take thousands of words to give a detailed explanation so I will simply show what it does with the aid of figure 3.

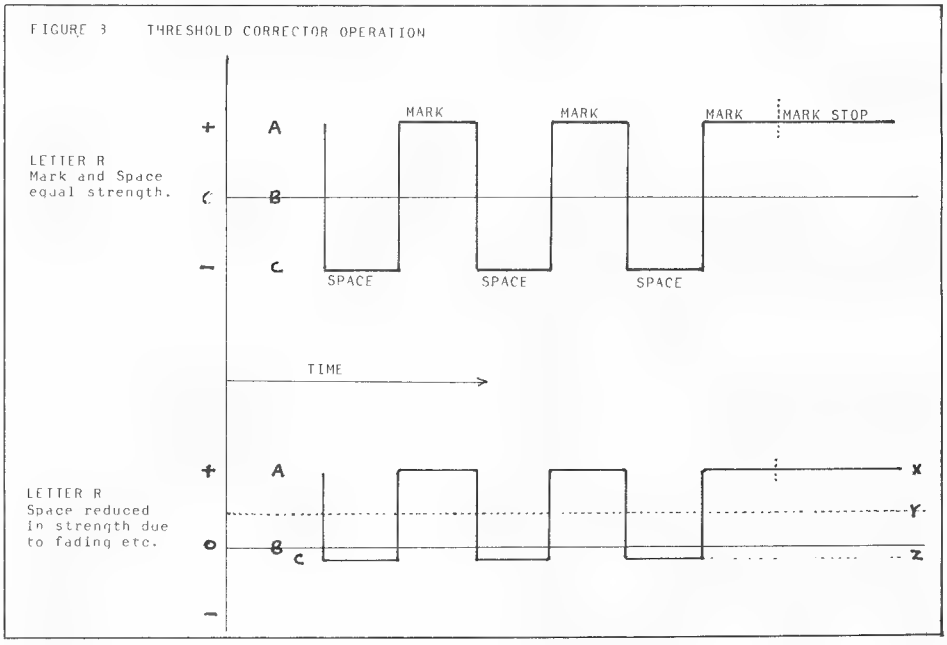
Let us assume the signal wave forms shown are being fed into the threshold corrector. At the top diagram an ideal letter R waveform is depicted, mark and space are exactly equal, mark being shown as positive and space as negative. With such a signal the threshold corrector has nothing to do, but this is not the case with the waveform shown at the bottom of the diagram. In this case some selective fading or perhaps some mistuning of the receiver has caused the space signals to be much reduced in strength. A indicates the peak value of mark, C indicates the peak value of space and B is the normal no signal reference point or threshold from which the signals increase in either a positive or negative direction. When this sort of signal is fed into the threshold corrector, the output of the corrector gives a balanced value of mark and space.

Looking at the right of the diagram you will note X indicating the peak value of mark Z indicating the peak value of space and halfway between them is Y which is the new threshold or reference point established by the threshold corrector. The overall amplitude is reduced but the waveform is good, a great improvement on what was at the input of the threshold corrector. Looking at this lower diagram you can see how even a signal with one tone missing will still give an equal positive and negative drive to the slicer unit that follows. The slicer is a device which will accept small positive and negative input voltages and produce, at its output, larger constant level positive and negative voltages suitable to drive the switching transistor that follows. The switching transistor does just that, it switches on and off the current that operates either a mechanical printer or drives a computer type unit.

Many modern demodulator units are capable of working with many different tone frequencies, shift values and Baud rates, this of course complicates the design and makes it difficult to equal the performance of a unit designed for only one set of tones at a given Baud rate. In spite of these difficulties many such commercial units are able to give quite good results with a vast number of tones, shifts and Baud rates.

One thing I have not mentioned in this simple explanation is something you may come across at times and that is the terms "AM" and "FM" demodulators. Briefly an "AM" demodulator does not use a limiter and a "FM" one does use a limiter. There is somewhat of a controversy as to which is best under difficult signal reception conditions. Perhaps to be ideal you should have a switch to convert from one to the other according to the conditions existing at the time.

As limiters are often used in demodulators the following points are worth considering. A limiter receiving sufficient input puts out a signal of constant amplitude. It does this by preventing higher levels from passing through it. Levels below its fixed output level will however pass through it without difficulty. If a very large signal level is fed into a limiter it may do more harm than good as the desired signal output is now limited to a similar level as many formerly smaller noise and QRM signals present. The strongest signal into a limiter "captures" it so if this is the desired signal all will be well but if the desired signal fades below the noise level the noise takes over and the signal is lost. From the above you will note sometimes limiters help and sometimes hinder good reception. Of course limiters introduce audio distortion but this matters little in demodulators. Of more importance is the fact that limiters introduce some "mixing" noise into the system. In demodulators, a limiter may often be as simple as two silicon diodes connected in parallel conductively facing in opposite directions. The



output voltage of such a limiter will be about .6 of a volt.

As stated earlier most of the foregoing concerns HF band FSK however most demodulators designed for such use will have performance to spare for VHF/UHF AFSK use provided the right tone frequencies and shift are used. By the way, the simple valve demodulator would be useless unless a sharp tuning circuit tuned to 2295 Hz were used at its input, with AFSK there is no way of zero beating the mark tone to eliminate it as with FSK.

HANDY BOOK

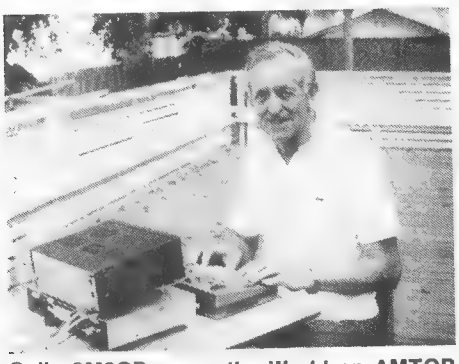
I have to hand a book from America entitled "GUIDE TO RTTY FREQUENCIES" by Oliver P Ferrell, published by Gilfer Associates Inc, PO Box 239, 52 Park Avenue, Park Ridge, NJ 07656, USA. This book would be very valuable to any who search the HF bands for RTTY signals. About 4500 stations or frequencies are itemised with ancillary information about the location, speed and shift format, purpose and power and where applicable, even news cast schedules. At the present time I am not aware of any Australian book shops stocking this goldmine of RTTY information but from the details above, you should be able to order a copy, or gain more information.

RTTY FREQUENCIES

I note in an ANARTS RTTY news broadcast on Sunday 10/7/83 some recommended Gentlemen's Agreement RTTY frequencies. I now quote these frequencies in MHz as copied from the broadcast. *160 metres: 1.825 to 1.835 — 80 m: 3.535 to 3.545 — 40 m: 7.035 to 7.045 — 30 m: 10.140 to 10.150 — 20 m: 14.080 to 14.100 — 17 m: 18.100 to 18.110 — 15 m: 21.080 to 21.120 — 12 m: 24.920 to 24.930 — 10 m: 28.050 to 28.150 — 6 m: 52.080 to 52.100 — 2 m: 146.600 spot frequency.* Thanks to ANARTS for this information. You should note the above are recommended frequencies and also note that the WIA have indicated provisional RTTY calling frequencies and these are as listed in the VK4 notes on page 57 of the June issue of AR.

73 to all from Bruce VK5XI

AR



Colin 9M2CR spans the World on AMTOR using a TS120 V running 10 watts.
Photograph by 9M2CR.

INTRUDER WATCH

Bill Martin, VK2EBM
FEDERAL INTRUDER WATCH
CO-ODINATOR
33 Somerville Rd, Hornsby Heights, NSW 2077

*If your hobby was fishing, and you devoted quite a lot of time to its pursuit with possibly a sizeable amount of money tied up in gear, boat rental, possibly your own boat etc, and you found that nearly every time you went to spend some of your leisure time indulging yourself in the sport, someone came along and tried to spoil it for you, would you be upset? Would you remonstrate with the offenders? Supposing you had just settled down in your favourite spot for a couple of hours' quiet relaxation, the sun shining, the boat gently rocking, and even perhaps the promise of the odd bite or two, when suddenly up come one or more 'big gun' boats and proceed to harass you and make things generally uncomfortable, even to the stage where you had to up-anchor and move elsewhere (*or go home*) — would you do anything about it, or just quietly give in to the bullies and let them tell you where and when you could enjoy your day off?*

I rather think that most of us, given the same set of circumstances, would certainly have something to say.

OK — so you don't fish — let's assume that golf is your pastime. The story could well be the same — you spend your precious day off at the course, the weather's great, and you're just in the mood for a nice eighteen holes. But there's a foursome behind you that keeps hitting through, breathing down your neck when you're on the green, and making a lot of noise just as the wood comes down for the tee shot. At this stage, you're not having much fun — *right*? Would you be moved to mention one or two things to the irksome foursome? (Politely, of course). Well, then — we've established, I think, everyone's right to enjoy his hobby without interference from others, who may do so intentionally, out of ignorance or just with plain callous disregard for your rights.

WHAT ABOUT THE HOBBY OF AMATEUR RADIO?

Consider the scene — You've found yourself with a couple of spare hours (having successfully caught up with your domestic chores, or made mental plans to catch up tomorrow) and have decided to look for a ragchew on 80 metres, perhaps chase the elusive DX or possibly to look for the ONE contact you need for a particular award. You're settled in the shack — all tuned-up, antennae still reasonably elevated, Murphy's having the day off, and the microphone and key are at the ready.

"Let's have a look at 20-metres" . . . Hmm; sounds like Europe is coming in rather well —"THERE'S A SP3 COMING IN". "I'll go for him." Grab the mike — BANG — up comes a commercial RTTY station right on top of you, 10 over 9. You wait for a while, but the RTTY wipes out the SP3 completely . . . finally, the RTTY station goes QRT, but, naturally, the Polish station is nowhere to be found. "OK, let's have a look at 15 metres." This time it's a CW intruder, going hammer and tongs, RST 599 and no callsign. "What now? — QSY, or go to the other room and operate the receive-only VHF TV unit?" Whatever you decide to do, the evening has been spoilt.

Where the first two examples of hobby-time being interrupted by inconsiderate people would perhaps not happen in reality too often, the third example, that of a QSO being ruined completely, or at best, made difficult, is a DAILY happening on the amateur bands. The next time it happens to you, send a report of the details to the Intruder Watch, via your Divisional Co-ordinator. Sure — that won't make up for your lost contact, but it could, with the assistance of others who have found themselves in similar situations, help the Intruder Watch to make representations *ON YOUR BEHALF* to the offending administrations. Of course, it takes time . . . let us have those reports and we'll do all we can to make things uncomfortable for those who show us no consideration. Find your Divisional Intruder Watch Co-ordinator through your Divisional Office, or check in the current callbook. Help to make UNAUTHORISED stations QSY.

PS: That RTTY station may have been one of the 'BXT' stations (BXT17, 44, 47, etc) which originate in Beijing (formerly called Peking).

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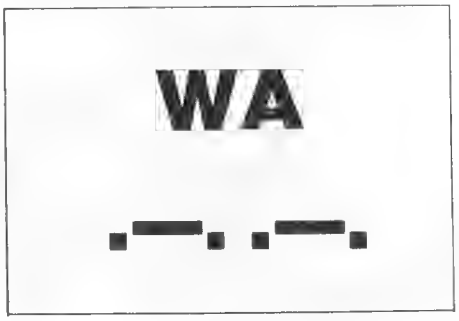
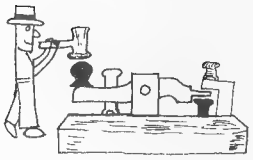


NOTICE

Copy for November magazine (columns HAMADS, etc) must arrive at Box 300, Caulfield South, 3162 no later than 23rd September 1983.



POUNDING BRASS

M Emm VK5FN
GPO Box 389, Adelaide, SA 5001

GETTING RID OF THE GARBAGE

Wouldn't it be wonderful if the moment we began a QSO, everything else on the band just vanished? Think of it . . . no QRM, no QRN, absolutely nothing! Unfortunately it doesn't work that way, and it's just as well for the sake of anyone else who might want to use the band. There is no way we can get rid of all the other signals and noise, so we will always have to live with a certain amount of interference.

Although I don't think it's been expressed quite this way before, the goal of any receiver designer is to make it appear that there is only one signal on the band — the one you want to copy. There are really only two ways to go about this, by increasing the signal-to-noise ratio, or increasing the selectivity. *Receiver design should therefore be quite simple, shouldn't it?*

It should be fair to assume that you have done everything you can to get desirable signals into your receiver's front-end, and made its job easier by controlling such things as beam direction and proximity to power-lines. *What else can you do to get rid of the garbage?*

Most modern receivers incorporate a number of features designed to increase selectivity, and improve the signal to noise ratio. Some features are optional extras, and still others can be added on between the receiver and the speaker or headphones. Let's start at the Intermediate Frequency or IF and see what can be done. In view of the number of receivers on the market now with multiple conversion (two or more IFs) it should be stated that for practical purposes, it doesn't matter which IF you apply these techniques to, although optimum combinations exist in some circumstances.

Think of the IF as a tunnel, into which go a potentially large number of signals, on a wide range of frequencies. The range of frequencies which is present at the IF is called the passband or IF bandwidth. If you are working CW you are only interested in a single spot frequency (with some slight tolerance for drift and possibly chirp), so you could conceivably set up an IF system which allows a bandwidth of only a few hertz to pass, and that would theoretically be ideal for CW operation. In fact, you can't reduce the pass-band that far until you have located a signal you want to copy, otherwise it is very difficult to find the signal in the first place. So ideally, you should have a facility to vary the IF pass-band from fairly wide to very narrow.

This facility is afforded by selectable filtering and variable bandwidth tuning. Most modern transceivers offer a selection of IF filters with different bandwidths, and it is important not to get too narrow a filter if you cannot switch it out of the circuit (either by means of a filter switch or by going from CW mode to SSB, with its wider bandwidth). If you listen in SSB mode and then switch over to a 250 Hz filter, you will lose the received signal unless your VFO was tuned within 125 Hz of zero-beat. With some rigs it is possible to alter the width of the band-pass, or its shape, with the same effect more or less as adding in a filter.

In either case, the problems associated with a very narrow band-pass are quite well illustrated in the CQ situation. If you call CQ, and are using a 500 Hz filter (or achieving the same effect with audio peak filtering or some other gadget), you will not hear a returning signal that is more than 250 Hz away from your transmitting frequency. Few and far between are the operators who routinely zero-beat and can come up spot on every time. For that matter, there are still a lot of less fortunate operators who have to make their own transmitters, and can't build in that much control or stability. When you call you should expect an answering signal to appear anywhere within a range of 2 kHz or more. So the trick is to listen with as little filtering as possible. Switchable filters are ideal, and listening in the SSB position is equally useful. Variable IF adjustments are fine for tuning any given signal you might be interested in, but it can be very tricky to get back to normal if you need to. Many experienced contest operators use audio peak filtering only for that reason — they can switch it on and off at the touch of a button, without any need to retune.

Another gadget which is of interest at the IF is the notch filter. This is a circuit which acts as a band-stop filter over a very small portion of the IF bandwidth, so that an interfering signal such as another CW station or an AM heterodyne can be blocked. They can be very effective, and a usual degree of effectiveness is quoted as -40 dB, which means that signals within the notch are suppressed by 40 dB in comparison with the rest of the IF bandwidth. It does not get rid of them completely, but can often reduce the level of interference to a mere annoyance

If your rig is equipped with an IF shift control, the frequency of the IF itself is shifted a bit to either side, which can often eliminate interference from other stations including SSB (who of course would not be in the CW part of the band in the first place).

Beyond the IF capabilities, the audio stages can be made more selective too. The Audio Peak Filter (APF) was mentioned earlier, and it is probably about the most effective treatment. As with radio frequency CW signals, the audio consists of a single tone which is identifiable with a single audio frequency. The APF provides a means of suppressing all but the wanted pitch, and usually has some means of adjusting the frequency of that pitch.

Among the other things that can be done at the audio end of the chain, a tone control for the output can work wonders with QRN. After all, one of the great things about CW is its simplicity, so not much is required in the way of fidelity when it comes to speakers.

Many audio filtering techniques can be applied outside the rig, between it and the speaker. Circuits can be found in most handbooks, and factory made devices are readily available from most suppliers of amateur gear.

You don't have to have many of the features discussed above to get rid of the vast majority of interference problems. If you take the trouble to find out how they work, and use them properly, you can indeed get rid of most of the garbage. CU next month.

AR

QSP

MICROCOMPUTERS IN AMATEUR RADIO

For amateurs interested in combining computers and amateur radio there are now two groups in the UK for users of microcomputers in amateur radio.

Membership of either group is open to licence-holders and SWLs and provides members with ideas, circuits, programmes etc to help them make better use of their micro in the radio-shack. Both groups are non-commercial in nature.

The Sinclair Amateur Radio User Group (SARUG) is open to users of the Sinclair range of micros (zx81/TS1000 and Spectrum/TS2000). Full information may be obtained from Paul Newman G4INP, 3 Red House Lane, Leiston, Suffolk IP16 4JZ UK.

Radio Amateurs Microprocessor Techniques & Operations (RAMTOP) is open to all users of micros other than Sinclairs. Full details can be had from Revd R P Butcher G4NWH, The School, Wellingborough. Northamptonshire NN8 2BX.

Please note that in both cases two International Reply Coupons must be enclosed to ensure an airmail reply.

Both groups co-operate and this is proving very beneficial to members.

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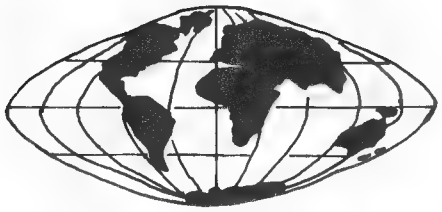


VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time, indicated as UTC

AMATEUR BAND BEACONS

FREQ	*CALLSIGN*	*LOCATION*
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.060	KH6EQI	Pearl Harbour
50.075	VS6SIX	Hong Kong
50.945	ZS1SIX	South Africa*
51.020	ZL1UHF	Auckland
52.013	P29SIX	New Guinea
52.100	VK0AP	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHP	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.470	VK7RNT	Launceston
52.510	ZL2MHF	Mount Climie
144.400	VK4RTT	Mount Mowbullan
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.475	VK1RTA	Canberra
144.480	VK8VF	Darwin
144.550	VK5RSE	Mount Gambier
144.600	VK6RTT	Carnarvon
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.410	VK6RTT	Carnarvon
432.420	VK2RSY	Sydney
432.440	VK4RBB	Brisbane
432.450	VK3RMB	Mount Bunninyong

** ZS1SIX is a new beacon at Piketberg in Cape Province of South Africa and is 807 m ASL, and runs 16 watts to a ground plane antenna. It is alternatively operating in FSK and FM modes, and sends "CQ DE ZS1SIX QTH PIKETBERG SA FSK MODE PSE QSL TO ZS1CT 73".*

It is noted with interest that the RSGB is seeking permission to operate a 50 MHz beacon from their Headquarters with the callsign GB3NHQ. Initially it would only operate outside TV hours, but next year continuous operation is envisaged.

Dave Lewis GW4HBK has now worked nine of the now thirty eight 6 metre operators permitted in the UK but he complains of QRM as everyone seems to operate within a few kilohertz of 50.100! Now, where have we heard that before!

The above three items are contained in "The Short Wave Magazine" May 1983, and sent through the kindness of Steve VK5AIM. The next three short items come from the same source.

There has been a claimed "first" 2 metre EME QSO between Ireland and the USA. On 28/2/83 from 0115 to 0235 GI4FFL/A at the station of GI6EYO contacted K1WHS with signals peaking to 3 dB over noise. GI6EYO used a Drake TR-7 HF transceiver driving a 2 metre transverter with BF900 RF and mixer stages, plus BF981 masthead amplifier — an 8874 PA drives four Cushcraft 214-B yagis, with elevation control, at a height of 60 feet, and fed with heliax cable. We say "well done" for the effort involved with a modest station set-up.

Interested to note that the now famous Mu Tek organisation in the UK have produced an interesting 2 metre pre-amplifier for 144 MHz using an MGF1200 GasFET in a 'noiseless' negative feedback circuit. The claimed performance includes a noise figure of 0.9 dB or better, a gain of 13 dB, input and output third order intercepts of +14 and +27 dB m respectively, and a power handling capability of one kilowatt in the SSB mode. It comes complete with a control sequencer. Looks like an interesting device.

The allocation of the forty 6 metre licences in the UK has come in for a lot of criticism, as was to be expected, mainly from those who were unsuccessful, and the flak is still flying. They are allowed to operate between 50 and 52 MHz outside BBC1 transmission hours, which commence at 0830 with the firing up of the old 405 line transmitters, which are due to close down in 1984. It seems about 500 amateurs expressed an interest in transmitting on the band, and 126 returned an RSGB questionnaire on the subject, and forty were selected!

VHF & UHF IN THE USSR

David Rankin 9V1RH/VK3QV has written from Singapore submitting a current list of records which have been attained by amateurs in Russia. David writes: *"A short explanation is in order. Dex Anderson W4KM regularly receives copies of various Russian radio magazines. He goes through them and anything he finds of general interest he roughly (summary) translates into English. He makes a full translation of anything of special interest.*

"The list of records attached is in the latter category. It is interesting to note that the literal translation for VHF/UHF in Russian is 'ultrashortwave'. Radio #3 was the March issue of 'RADIO' the RSF version of 'Amateur Radio'. Thus, full credit for the translation is due to the work of W4KM.

"CHRONICLE: The Collectives at UK5EFL and UK5ECZ from Krivoy Rog are continuing their experiments on SHF. On 6th August they conducted a special outing to the shores of the Sea of Azov, taking equipment for 5.6 and 10 GHz. Contacts were established over a distance of 101 km. Thus a new category is established for the USSR RECORD FOR THE 5.6 GHZ BAND AND THE RECORD FOR THE 10 GHZ IS BETTERED . . . For 5.6 GHz a parabolic antenna with a 30 dB gain was used and transmitter power was 45 mW. For 10 GHz a 36 dB gain was used and transmitter power was also 45 mW.

"In the following table, a new item is introduced: '144 MHz — iono' which reflects achievements in DX communications established with the help of a previously little-known proprogation mode — ULTRASHORT-WAVE SCATTERING CAUSED BY UNEVEN IONISATION IN LAYER E OF THE IONOSPHERE (in foreign radio amateur literature this is called (begin English text) Ionospheric Scatter By Field Aligned Irregularities (FAI) (end English text) and also aurora E . . . The calculation of the QRB's for QSO's reported by U's (except Moon ones), as previously, was carried out on a YeS-1040 A computer by A Tarakanov, UA3AGX.

Table of Achievements by Ultrashortwavers in Distant Ultrashortwave Communication.

144 MHz — 'tropo' — 15.09.82 — RC2WBR/G4GFX — 1943 km (3025 km)
144 MHz — 'aurora' — 26.09.82 — UC2ACA/G5BM — 2029 km (2138 km)
144 MHz — 'meteors' — 12.08.77 — UW6MA/GW4CQT — 3099 km
144 MHz — 'Es' — 28.06.79 — UB5JIN/F6EZP — 2826 km (3864 km)
144 MHz — 'EME' — 15.08.82 — UA1ZCL/VK5MC — 14 000 km (17 525 km)
144 MHz — 'iono' — 27.06.82 — UA1ZCL/DK3UZ — 2150 km
430 MHz — 'tropo' — 15.09.82 — UP2BJB/G4GFX — 1712 km (1824 km)
430 MHz — 'aurora' — 13.07.81 — UA3LBO/SM6EAN — 1276 km
430 MHz — 'EME' — 6.11.82 — UA3LBO/K2UYH — 8750 km (18437 km)
1215 MHz — 'tropo' — 22.02.82 — UP2BJB/DF3XU — 878 km (1360 km)
5640 MHz — 'tropo' — 6.08.82 — UK5ECZ/UK5EFL — 101 km (217 km)
10000 MHz — 'tropo' — 6.08.82 — UK5ECZ/UK5EFL — 101 km (869 km)

The figures shown in brackets are probably the world standing record but I cannot vouch for the accuracy of these (VK5LP).

It is interesting to note that there seems to be some degree of VHF/UHF activity in Russia and they are prepared to go out to selected good locations for attempts at extending the distances previously achieved, so it seems there is little difference in this aspect of amateur radio there when compared with what is done from time to time in other parts of the world. Thankyou David for sending the information, something of interest from quite a different source.

6 METRE NET

Peter VK3XHH, Publicity Officer for the Victorian Railways Institute Wireless Club, VK3RI, has written advising the Club is currently operating a 6 metre SSB net every

Sunday morning from 2315. The Club also holds nets, when members are available, every day at 2315 and 0915. The weekday nets are on a less reliable basis than the Sunday net as they depend on shifts, leave availability or retired members etc. The net frequency is 52.080 MHz after an initial call is given on 52.050 MHz, the 6 metre calling frequency. Any licenced amateur is very welcome to join in any of the Club's nets.

MACQUARIE ISLAND

Just a preliminary note to say it looks as though David VK5CK will be going to Macquarie Island later this year for a period of service there and is hopeful of maintaining the 6 metre beacon there and to increase the level of 6 metre activity from the island if the work load and conditions permit. It is hoped to bring you some more information on this matter at a later date when more is known. Suffice to say at the moment that we all wish David well for his tour to a very cold area, and know he will use his well known VHF abilities to the full.

SIX METRES IN NEW ZEALAND

It is encouraging to read in "Break In" that the latest news is that conditions are improving on this band after a long period of very low solar flux. On 4/5/83 the 6Y5RC beacon was copied by ZL2AQR, the beacon is in Jamaica.

On 2/5 ZL4OY/C from the Chatham Islands appeared on 50 MHz and was worked by ZL2AQR, and again on 3/5 by ZL1MQ, ZL2KT, ZL1BHV and ZL2AQR. The islands are really a new country and it was said to be the first recorded QSO on 6 metres with the Chatham Islands. (I am not quite certain but I seem to believe reading or hearing about a 6 metre station operating from those islands quite a few years ago so this may not be the first QSO. Someone is bound to put the record straight soon! . . . 5LP.)

On 8/4 ZL1BHV, ZL2AQR, ZL2KT and ZL2TJX worked KH6IAA on 51 MHz, and on 16/4, 27/4 and 30/4 FK8A and FK8EM worked all ZL districts.

There have been no similar reports of this being done from the eastern seaboard of VK so perhaps we are a bit too far away at present.

THE MAY EME WEEKEND

You will recall I recently gave some details of the EME tests which were carried out by K8HUH last May, during which I reported the signals did not find my QTH! Since then, I have received a lengthy tape recording from Gerry VK2BMZ, detailing the proceedings, plus a lot of written information and copies of the log etc (the latter items being more of interest to the EME operators than the average amateur, and they will receive copies in due course. I have spent some time transcribing the hour of spoken information on the tape and what follows is a condensed version containing the information likely to interest most people. I am indeed grateful to Gerry for going to so much trouble in preparing the facts for me, so I hope I can transcribe it with justice!

First of all, the technical description of the 140 foot radio telescope of the National Radio Astronomy Observatory (NRAO) at Green Bank, West Virginia, must indeed be of interest to everyone.

REFLECTOR — Paraboloid diameter: 140 feet. Surface: ⅛ inch aluminium plate. Surface area: ⅜ acre. Surface tolerance: 0.030 inches at zenith. Contains: 350 tons of aluminium; 35 tons of concrete ballast; 5 tons of balancing blocks.

FOCUS — 60 feet above the surface. Carries ½ ton of receiving equipment. Position relative to paraboloid stable to ¼ inch.

DECLINATION AXIS SHAFT — Length: 67½ feet overall; 57 feet between bearings. Diameter: 2 feet. Material: Composite aluminium and steel shaft running in two spherical roller bearings. Rotates 145°-53° north of zenith and 92° south.

YOKE — Serves to support the declination shaft and to rotate the antenna east and west about the polar axis by means of the polar gear.

POLAR AXIS SHAFT — Length: 67 feet. Diameter: 12 feet. Weight: 555 tons of steel; 170 tons of high density concrete ballast. Rotates 220°-110° east of meridian and 110° west.

GEAR SECTORS — Diameter of polar sector: 84 feet. Diameter of declination sector 71 feet.

SPHERICAL BEARING — Diameter 17½ feet. Surface tolerance: 0.003 inches. Floats on oil film 0.005 inches thick.

BASE — Height: 60 feet; 41 feet 6 inches to observation deck. Contains: 5700 tons of concrete; 140 tons of steel. Wall thickness: 3 feet. Houses control room, hydraulic and electric equipment, transformer vault, and electronic workshop.

TOTAL MOVING WEIGHT — About 2500 tons.

MOUNT — Equatorial — two mutually perpendicular axes.

POINTING PRECISION — 10 seconds of arc — about the diameter of a dime at 400 yards.

RESEARCH PROGRAMME — Studies of known element and molecular spectral lines. Continuum research at other than line frequencies. Generally at wavelengths between 2 and 40 cm. Very-long base interferometry (VLB) using the 140 foot and non-NRAO telescopes.

DATE OF COMPLETION — Spring, 1965.

Gerry, VK2BMZ, spent four months in the US returning home late May 1983. His working period was spent at Greenbank West Virginia at the National Radio Astronomy Observatory (NRAO) so he was there at the time of the actual tests.

Two Australian stations worked were Chris VK5MC and Hans VK6ZT, the latter believed to be about the limit as far as the window goes between West Virginia and the rest of the world going west as the moon would be setting. The people at Greenbank were very happy with the results achieved and with it the success of the weekend lies strongly with Tom Clarke, W3AWA, who came down originally for an observing run and spent his time building up equipment for use on the EME weekend.

On the history side, the Observatory, or NRO as it is usually called, is run on a thing called Associated Universities and financed from the National Science Foundation and essentially their charter is to provide radio astronomy facilities of the best possible quality for the Radio Astronomy Committee, both in the USA and for visitors around the world. They have very few astronomers on the staff, staff there mainly runs the observatories, they have one 40 foot and one 300 foot antenna and an interferometer in Greenbank. The head office and main computer facilities are in Charlotsville in Virginia about 300 miles east of Greenbank, they have a 36 foot antenna at Pecan, Arizona for millimetre work which is basically 43 GHz up to 300 GHz, and they have a thing called a Viewray south of Albuquerque, New Mexico, they are the main facilities. Greenbank Viewray sight which first started in 1956-57 which is now fairly old and some of its glamour has been lost but not to take anything away from the observatory, it's just that new facilities have sprung up. 1983 was the 50th anniversary of radio astronomy which commenced about 5th May 1932 with Carl Janske giving the lead, and deciding there were three kinds of interference on the phone circuits he was receiving, one from a nearby electrical storm, one from much more distant electrical storms. Propogated from the atmosphere was a third source now called Star Noise which he finally decided came from well overhead in a position slowly changing. He first thought it was the sun, but after the equinox the source of noise still kept on rotating in the same direction each day so he came to the conclusion that it was star noise.

So in 1983, a three day workshop was held in Greenbank to bring together a lot of people involved in the beginnings of radio astronomy. There were about twenty members of the Janske clan present, and this event put the NRO Greenbank back on the market to commemorate the fifty years of such work. Two amateur projects were decided upon, in the front yard of Greenbank was a reproduction of the 1932 antenna which Carl Janske used on 20.5 MHz, and so for the weekend before the EME test a couple of people put this antenna on 15 metres with a crude antenna coupler and about 2 kW. The following weekend were the EME tests and this was probably the first time an actual transmitter had been put on the NRO antenna and it was a case of doing the best possible without interferring with its original activities. The 300 foot antenna which is probably half a mile away from the 140 foot antenna was scheduled for observations that weekend as well as the interferometer working on 1600 MHz and it was one of the conditions of the EME operation that no interference be caused to the other operations. This was helped of course by having a few amateurs on the staff in the right places who were able to assist in keeping out the interference and for ensuring the right attitude was developed towards the experiments.

The equipment was built in two parts, NRO have a standard receiver box about 4 feet long by 3 feet square and fits in any of the Greenbank telescopes. We got hold of an old receiver which had the electronics stripped out of it so all we had was a waterproof package with a floor and ceiling in it with a few power connectors, fans, ducting, temperature sensor; everything else we needed had to be built and it wasn't until Tom Clarke arrived with a station wagon load of equipment about ten days before the EME weekend that we were able to start to get things ready. Tom was able to buy several Bird watt meters, directional couplers and filters to put in the

line as we were worried about harmonics of 70 cm, particularly the second harmonic was potentially disastrous because of the 700 MHz work being done on the pulsars on the 300 foot dish and part of the time that was looking past the 140 foot dish. Apart from one scare which we decided was not our fault we did not cause any interference to the 300 foot antenna.

On the outside of the package was mounted the feed consisting of two fairly thick reasonably broadband crossed dipoles which became the focus of the antenna. These were connected by no more than 4 inches of semi rigid coax to a hybrid connected to one coax switch and then to a transmitter switch. Things were a bit hazy as Bill Brundage and I were running around trying to buy things and many changes were made from the original ideas. But there were three coaxial switches up the front end to change the polarisation, isolate the transmitter etc and a third switch to connect a noise source to enable the receiver system to be swept. After the switches there were some band pass cavity filters which Tom Clarke had collected and tuned up, the transmitter was a nominal 100 watts which actually gave out 150 watts! It was owned by AMSAT and operated at 12 volts 20 amps. We had problems getting such a supply but eventually got a large 30 amp unit using an SCR in the primary, on loan from people who wanted it back if needed as it was their spare! Our worries that there might be hash from the SCR switching were unfounded.

The receiver consisted of two GasFET preamplifiers, home made. Initially we were going to come down at 28 MHz with 28 MHz in one cable and 70 cm in the other but we found the local oscillator in the converter was radiating harmonics which were getting into the front end so we amplified the signal and brought it downstairs where it was split several ways. There were two spectrum analysers one at 70 cm and one at 30 MHz, the signal was then split two more ways to provide 28 MHz into an Icom 720A and a Drake TR4 receiver so there were two independent positions for tuning around the nominated frequency.

The 150 watt solid state transmitter was driven by a Mirage 25 watt amplifier which in turn was driven by an Icom IC451 70 cm rig. Much padding down of signal powers was needed all along the transmit chain and high power pads had to be scrounged as all pads around a radio astronomy set up are low power, eg 2 watts. Facilities were included to allow signals to be transmitted from the driver stage and the 10 watt IC451 if need be. Tom went to a lot of trouble to ensure that when you wound up the power on the IC451 that all drive levels were correct along the chain to 150 watts output stage. Hence the need for a number of Bird watt meters.

Additional equipment hung on to the system consisted of a video tape recorder, Morse teletype auto ASCII decoder, bug keys, pocket radio rig, plus the very latest HP noise figure indicators (in the $2500 price range!) and they had the capability of displaying a swept frequency response, noise figure, gain and return loss. It was used extensively to optimise the receiver front end; it was possible to go on swept noise from 10 MHz to 1500 MHz. All cables used were swept from 2 to 4 GHz to make sure they were in good condition, the match was good, connectors tight etc. A multitude of connectors were in use, SMA, BNC, UHF and there were problems matching one type to another. Those involved were working up to eighteen hours a day. My (VK2BMZ) contribution was to build up the electronics which allowed the polarisation switches to be independently set for transmit or receive, with indicator lights to show the operating positions of the various switches or relays.

All equipment was tested in a special building which amongst other things gives a vibration test to check firmness of cables, mountings etc. Two days was spent in there debugging the equipment before it was finally mounted in the telescope.

Some final figures for the receiver were that the easiest place to measure the noise figure was at the input to the output of the hybrid, where it was agreed it was 65-70 degrees Kelvins which included a couple of switch losses in front of the pre-amps. It was estimated by the time you put on the hybrid and cross dipoles and you do a NF measurement of feed plus the rest of the system it was probably up to 110 k; by the time it was on the 140 foot dish looking at the moon with its radiation as well as receiver noise the figure would be up to 150 k.

The whole system was computer controlled; it appeared the beam width was about twice the diameter of the moon at 70 cm so we were sort of over limiting the moon, but we were able to tap the moon from horizon to horizon without trouble. Once the programme was written and equipment set up we got echoes from the moon. By watching the total power on the chart recorder we started to drive off the centre position of the moon in each coordinate and we went in one direction enabling us to obtain stronger signals. The sun and moon were close together on the Friday with a consequent rise in received noise, two days later they were much further apart so we didn't have that trouble then. The weather was cloudy most of the time and rained on the Sunday.

This was my first experience with EME and suitably impressed with our echoes coming back. SSB on 150 watts was no trouble with return echoes up to 15 dB above noise on the spectrum analyser. We could turn off the amplifier and get our signals back on SSB using only 10 watts from the IC451, and by turning the rig down to 100 mW we could still hear our echoes on CW!

As far as we know we are able to work everyone who called us, some signals were very weak. The transmitter was left on 432.095 MHz and tuning about 100 kHz from there with both receivers. The TR4 was used primarily as a spotting receiver and the IC720A the main working receiver. There was always one person tuning the band, sometimes two, with an automatic keyer for callsigns etc. We were conscious there were a lot of people out there wanting to work us so we made every effort to work anyone we heard. One hundred and thirty one contacts on CW and seventy two on SSB were made, to some stations more than once. Signal reports were up to 589 on CW and 5 x 8 on SSB, with most reports being in the excellent class. About 132 different stations were worked. All continents were worked even though it required a phone call to rustle up someone from South America (YV5ZZ). Z25JJ provided the African contact, there were many European and Japanese contacts apart from the USA and Canadian contacts.

Operators involved included WA4MVI, K8OCL, KB2M, VK2BMZ, N4QQ, W3IWI, K2AOE, WB3AXN, WA2LQQ, AD8T, KA8NQR and K8HUH.

Those participating concluded the amount of work had been very worthwhile and if nothing else had re-established the position of the Greenbank Observatory, and alerted operators around the world as to the possibilities of EME on a global scale. One area of exception was no contact with New Zealand.

The above is an extract from the large amoung of material sent to me by Gerry VK2BMZ to whom I am indebted for his interest in informing me of the events. It has taken a fair amount of space in the notes but should be of general interest to most VHF/UHF operators and I guess others as well. Anyone want to start building an EME antenna?

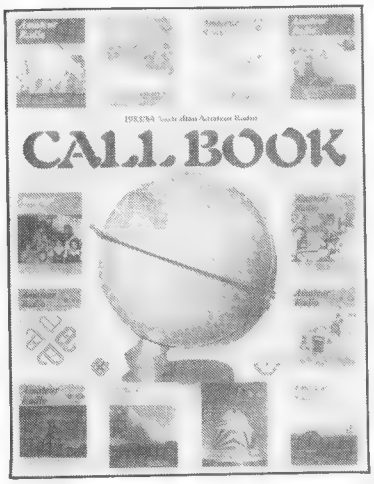
LATE NEWS

Just to hand is a note advising the Department of Communications has agreed to allow VK stations to use the band 50.000 to 50.150 MHz on the basis of non-interference to Channel O. Stations in VK6, Antarctica and external territories will be allowed to operate on an unrestricted basis, all other VK areas will be permitted to operate outside of Channel O broadcasting hours.

After such a long time its a welcome break to be allowed this section of the band again. Other comments will be left until another issue but suffice to say if amateurs play the game according to the rules we may find a relaxing of the rules in the future to permit operation on a wider basis.

That's all for this month. Concluding with the thought for the month: "The reason most of us don't live within our income is because we don't consider that living." 73. The Voice in the Hills. **AR**

Have You Obtained Your New Call Book Yet?



The new 1983-84 Call Book is now available from your Division or Magpubs for $5.75.

WICEN NEWS

Ron Henderson, VK1RH
FEDERAL WICEN CO-ORDINATOR
171 Kingsford Smith Drive, Melba, ACT 2615

SIMULATED EMERGENCY TEST

This year the annual ARRL Simulated Emergency Test (SET) involvement will be combined with a NSW WICEN State Wide Welfare Message Handling Exercise over weekend 17/18 September 1983. The NSW exercise is aimed at establishing contact with welfare agencies throughout the state. To provide a greater scope for international messages NSW WICEN will be canvassing interest from other states but essentially the ARRL SET aspects will be played low key.

THIRD PARTY TRAFFIC NETWORKS

A little while ago I received from Sam Voron, VK2BVS, the Australian Traffic Network Co-ordinator, a copy of the "*Manual for Operators on the Australian Traffic Network (ATN)*". The manual is a complete guide or handbook for TPTN operators and copies may be obtained by sending a 70¢ stamped addresed envelope 355 mm by 230 mm to Sam Voron, 2 Griffith Ave, East Roseville, NSW 2069. Sam carefully and in considerable detail sets out the background and considerations of TPTNs and offers several wall charts on ATN frequencies, numbered radiograms and operating techniques.

Also of interest is the WIA Policy Statement on Third Party Traffic as drafted at the 1982 Federal Convention. It reads:

RECOGNISING:

- *The ability of the Amateur Radio Service to provide public service through the use of their frequency bands, specialised equipment and knowledge;*
- *The ongoing need to promote the Amateur Radio Service to the general public;*
- *A desire to develop operating skills within the Amateur Radio Service;*
- *The potential for the development of national and international goodwill;*
- *A separate need for emergency networks operating in support of official counter disaster agencies;*
- *The right of amateur radio operators to choose whether or not to be involved in such activity.*

THIS COUNCIL RESOLVES TO:

- *Support the use of third party traffic handling priviledges on all amateur bands and by all interested amateur radio operators;*
- *Support the existance of networks of facilitating third party traffic handling;*
- *Support the existance of emergency networks operating in support of official counter disaster agencies;*
- *Educate interested members in third party traffic handling techniques, procedures and responsibilities;*
- *Promote co-ordination between third party traffic networks and authorised amateur emergency networks;*
- *Continue to pursue the establishment of third party traffic agreements with other countries.*

COMMON AIM

Naturally WICEN and TPTNs have differences but they are based upon a common aim — to pass message traffic for others — and it is this which gives them a common cause in differing operating circumstances.

AR

WIA VIDEOTAPE CATALOGUE

Copyright	TITLE (Each section in accession order)		Approx Dur	Col/ B&W	Ordering Info
Yes	7J1RL DXpedition	(JARL)	60 mins	Colour	Loan Only
Yes	G6CJ's Aerial Circus	(G6CJ)	90 mins	B&W	Loan Only
Yes	Wireless Telegraphy - circa 1910	(VK3ADW)	10 mins	B&W	Loan Only
No	Op of Burley Griffen Bldg — SA WIA HQ		50 mins	Colour	Copy Avail
No	This is Amateur Radio (teens)	(ARRL)		Colour	Copy Avail
No	Moving Up to Amateur Radio (CB)	(ARRL)	15 mins	Colour	Copy Avail
No	The Ham's Wide World (Obsolete)	(ARRL)	30 mins	Colour	Copy Avail
No	The World of Amateur Radio	(ARRL)	30 mins	Colour	Copy Avail
No	TWH7DAYS — Amateur Radio (teens)	(HSV7)	25 mins	Colour	Copy Avail
No	Amat Radio — The Nat Resource	(VK5KG)	6 mins	Colour	Copy Avail
No	SSTV Pictures from Space (Voyager)	(VK5KG)	15 mins	Colour	Copy Avail
No	Low Definition Television	(VK5KG)	25 mins	Colour	Copy Avail
No	History of ATV in South Aust	(VK5KG)	30 mins	Colour	Copy Avail
No	VK5RTV's uComputer Controller	(VK5KG)	10 mins	Colour	Copy Avail
No	ATV in Australia 1978 — for BATC	(VK5KG)	30 mins	Colour	Copy Avail
No	ATV in Australia 1980/81 — for BATC	(VK5KG)	30 mins	Colour	Copy Avail
No	ATV in United Kingdom 1980	(G8CJS)	30 mins	Colour	Copy Avail
No	ATV in United Kingdom 1980 Revisited	(G8CJS)	30 mins	Colour	Copy Avail
No	An ATV Hamshack Micro-computer	(VK3AHJ)	10 mins	Colour	Copy Avail
No	The Signal to Noise Story	(VK3ATY)	45 mins	Colour	Copy Avail
No	UHF Preamplifers	(VK3ATY)	45 mins	Colour	Copy Avail
No	CQ ATV DX International	(WB2LLB)	60 mins	Colour	Copy Avail
No	Overseas TV Clips about ATV etc	(WB2LLB)	60 mins	Colour	Copy Avail
No	Model Aero-Nautical Mobile ATV	(VK5KG)	15 mins	Colour	Copy Avail
	Lectures recorded at VK5 WIA HQ . . .				
No	— RTTY	(VK5QX)	40 mins	B&W	Copy Avail
No	— Tracking Oscar	(VK5CI)	40 mins	B&W	Copy Avail
No	— Wire Antennas	(VK5RG)	40 mins	B&W	Copy Avail
No	— Loaded Wire Antennas	(VK5NN)	50 mins	Colour	Copy Avail
No	— Apollo 13 Disaster	(VK5JM)	90 mins	Colour	Copy Avail
No	— History of uProcessors	(VK5ZFQ)	60 mins	Colour	Copy Avail
No	— Understanding uProcessors	(VK5PE)	60 mins	Colour	Copy Avail
No	— Winning Foxhunts	(VK5TV)	45 mins	Colour	Copy Avail
No	— An Aux Batt Charger	(VK5NX)	25 mins	Colour	Copy Avail
No	— Testing ATV TX	(VK5KG)	50 mins	Colour	Copy Avail
	Getting Starting in . . . As above but made to mark WCY				
No	— Amateur Television	(VK5KTV)	55 mins	Colour	Copy Avail
No	— Amateur Satellites	(VK5AGR)	50 mins	Colour	Copy Avail
No	— Amateur RTTY	(VK5JM)	85 mins	Colour	Copy Avail
No	— Amateur uComputers	(VK5IF)	40 mins	Colour	Copy Avail

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These Video Tapes are available from the Federal Video Tape Co-Ordinator, John Ingham, VK5KG, 37 Second Avenue, Sefton Park, SA 5083. (refer page 47).

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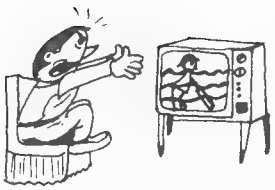
NATIONAL EMC ADVISORY SERVICE



Tony Tregale, VK3QQ
FEDERAL EMC CO-ORDINATOR
38 Wattle Drive, Watsonia, Vic 3087

ESD — "The Electronics Killer"

Electromagnetic interference is, in most cases, just an annoyance to electronic equipment: ElectroStatic Discharge (ESD) is quite often a "killer" of modern solid-state electronic devices.

Mother nature provides the best large scale illustration of ESD. Charge concentration in thunderclouds can produce potential differences of millions of volts between clouds and clouds, and clouds and ground. The breakdown between charge centres results in a lightning discharge. The electromagnetic energy thus released can cause severe interference to radio communications services.

Electrostatic discharge is a phenomenon in which an electrostatic charge accumulates on the surface of a body or particular type of material, usually resulting from mechanical movement of one insulated body or material in relation to another. The actual discharge occurs when the insulating material between the charged object can no longer withstand the stress of the charge potential.

A persons body can, similar to a capacitor, become charged to several thousand volts with respect to earth or similar zero potential. Most of us would be familar with the surprising shock received after waking across certain types of carpet and then catching hold of some innocent metal object. The current pulse that flows as a result of ESD may be several hundred milliamperes with a delay constant of a few tenths of a micro second. This short duration current flow produced by a 15-20 kV ESD, although basically harmless can be quite painful.

Electrostatic voltage can be generated at any time by dissimilar materials, where the triboelectric (frictional) charge currents are flowing in opposition to each other. Charge generation occurs whenever two materials contact each other and then separate, or where there is relative movement between the materials.

The voltage thus generated is a function of the degree of separation or relative movement in the triboelectric series, modified by the relative humidity. The Triboelectric Series is a galvanic order of non-conducting materials. In the order — cotton comes at the centre, teflon at the negative end, and air at the positive end of the scale. Therefore, by choosing materials which have minimum triboelectric spread, the incidence of ESD can be minimised.

Once the charge has been generated, the distribution of the charge depends on the material's resistivity. Conductive materials allow charges to be removed by grounding. Non-conductive materials have to be dealt with by supplying them with a constant stream of positive and negative air-ions. The charged non-conductor then attracts oppositely charged ions to its surface, thereby neutralising the non-conductor.

An object such as an antenna which is exposed to moving air containing, sand or dust particles, water, or snow, can become static charged. The potential which can result may be in the order of several thousand volts. This potential is limited only by the point at which the corona discharge occurs.

However, perhaps the most important area of electronics which has so much to lose from the effects of ESD, is solid-state. With the dramatic increase in the use of sensitive solid-state devices, in all aspects of communications and electronics, the incidence of damage due to ESD has increased significantly. To the extent, that most major manufacturers of communications and electronic equipment have embarked on a fully integrated programme of ESD protection on their production and assembly lines.

If we consider the components we are using today, the susceptibility range of most is below 500 volts. The range of typical electrostatic voltages developed by the various effects of everyday living and working range from 100 volts to 35 000 volts. Because our body susceptibility (minimum sensitivity) is from about 3000 volts (short duration — low current), we would often be unaware of the damaging effect of ESD, when handling modern sensitive components.

We are all familiar with component damage and component malfunction, these are usually connected with definite failures. Quite often damage from ESD is not so pronounced. It can be of an intermittent nature, or it can reduce the life of the components. In addition, the effects of ESD on electronic components is quite often not recognised as such, because failures due to electrostatic discharge are quite often masked by other failures.

In conclusion, there are a number of rules which, if followed, can help to minimise the effects of ESD on today's sensitive components:

- *Assume all electronic components are sensitive to ESD damage.*
- *Do not touch a sensitive component unless you are grounded, or have been discharged.*
- *Do not transport, store or handle sensitive components except in a static free environment.*
- *Disconnect power before removing or replacing sensitive components.*
- *Use only anti-static coolant spray.*
- *Touch the grounded chassis, with a hand, prior to removing or inserting an ESD sensitive device.*
- *Discharge test equipment before use.*
- *Ground the ESD protective package before removing the replacement devices.*
- *When removing a device from an ESD protective package, avoid touching connections or circuitry.*

This short article is intended as an overview, or brief outline, of the very complex and wide ranging issues of ESD. Nevertheless, we trust this outline will provide a basic insight into this growing problem. For those who wish to pursue the subject further, the National EMC Advisory Service does have a wide range of additional material.

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AUGUST'S BEST PHOTOGRAPHS

The Judges at Quadricolor Industries and Waverley Offset Printing Group selected the front cover photograph and the judges at AGFA-GEVAERT selected the group photo on page 37.

These photos will now be considered for the AGFA CAMERA prize at the end of the competition in June 1984.

OPEN LETTER TO RADIO CLUB PROGRAMME ORGANISERS FROM THE WIA FEDERAL VIDEOTAPE CO-ORDINATOR

c/o 37 Second Avenue, Sefton Park,
South Australia 5083

Here is a way for your club to benefit, in yet another way, from its affiliation with the WIA. You can provide your members with quality technical lectures on subjects covering the whole range of amateur radio activities by taking advantage of the WIA Federal Videotape Library. You'll find this a boon, particularly if yours is a country club which often has difficulty obtaining a variety of expert lecturers for its regular meetings.

It's inexpensive and it's easy. Here's how it works . . .

Except for those titles for which the WIA does NOT hold a copyright licence, all you have to do is . . .

Supply me with a video-cassette of an "acceptable format"

Plus a stamped, return-addressed padded mailbag

and the programme is free for you to use in support of amateur radio in your area . . . including copying and transmission over the air if you wish.

Those programmes which are copyright are available only ON LOAN. To obtain any of them send with your request . . .

Information about your preferred VCR format,

A statement signed by a Responsible Officer of your club that, "I undertake that while (Programme Title) is assigned to me, I will not allow it to be transmitted over the air, nor copied by any means whatsoever, and that I will return the same promptly after showing."

A stamped addressed padded mailbag suitable for cassettes of your preferred format.

The present "acceptable formats" are as follows . . .

VHS	(Size 200 x 110 x 30 mm, Mass 350 gr, 3 Hr max)
Umatic	(Size 260 x 180 x 40 mm, Mass 835 gr, 1 Hr max)
Philips N1500	(Size 160 x 140 x 50 mm, Mass 625 gr, 1 Hr max)

Of these the VHS is preferable as being smaller and lighter it is much less expensive to post.

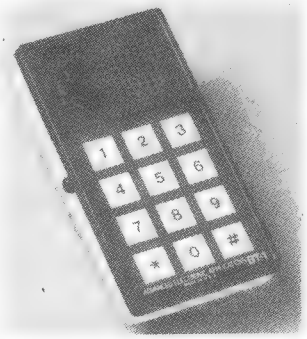
I hope that this information provides you with sufficient information on how to successfully make use of this free service without further delay.

73

John F Ingham, VK5KG
FEDERAL VIDEOTAPE CO-ORDINATOR

LEARNING THE MORSE CODE?

Try the All New BT-1 — Basic Trainer For Morse Code



Advanced Electronic Applications in conjunction with ETS (Educational Technology and Services)*, has developed the BT-1 Code Trainer. ETS methodology, based upon research by a prominent mid-west university, has demonstrated that a typical student using this system and the BT-1, can learn Morse Code to speeds of 20 WPM in four weeks based upon two 20 minutes daily training sessions.

The pre-programmed BT-1 computerised trainer will allow you to achieve proficiency in Morse Code faster than any other known method.

No prior knowledge of Morse Code is required to use the BT-1. There are no tapes to purchase or wear out. The BT-1 operates from a 12 VDC source, the unit can also be used in mobile settings via the 12 VDC system.

* Education Technology & Services, see page 81 October 1981 issue of Ham Radio Magazine.

Prices and Specifications Subject To Change Without Notice Or Obligation

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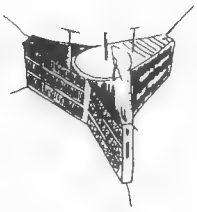
Telex 43318

MURPHY!!

The correct height of Mt Torbreck, Page 16, July AR is 1500m.

WHO SAID MT TORBRECK ISN'T 15000 M HIGH ?



AMSAT AUSTRALIA

Colin Hurst, VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR

Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.680 MHz
Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday, 14.305 MHz

AMSAT SW PACIFIC
Control: W6CG
2200 UTC Saturday, 28.880 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia Net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month were received from Bob VK3ZBB, Graham VK5AGR, Peter VK7PF and thanks are extended to AMSAT Telemail, UOSAT Bulletin Board and Mode J Newsletter for excerpts.

AMSAT TELEMAIL ACCESS

Following an approach from Graham VK5AGR to Rich Zwirko, K1HTV (Vice-President, Operations — AMSAT) access to the AMSAT Telemail Bulletin Board has been granted to AMSAT Australia. Consequently, amateurs throughout Australia are now able to obtain the latest satellite news direct from AMSAT Headquarters. Although it would appear, in the first instance, to be a rather expensive medium for the dissemination of news, it must be borne in mind that, at this juncture, it is the only reliable source of accurate and reliable news input at our disposal. In the months to come its worth to the satellite community throughout Australia will be accurately assessed.

OSCAR 10 NEWS AND HAPPENINGS

Following the successful launch of Oscar 10 as reported in this column last month, the chain of events that have transpired since then would fill a complete issue of Amateur Radio and I doubt whether our erstwhile editor would allow that. Suffice to say it was obvious that the apparently smooth launch had not been so smooth after all. Notwithstanding the AMSAT-Oscar 10 team got on with their demanding schedule and on the 11th July at 22:30:48 UTC performed an historic act by successfully firing the kick motor.

VIA TELEMAIL FROM THE AMSAT PRESIDENT, TOM CLARK W3IWI

"CONGRATULATIONS!!! I know I speak for all when I say to Jan, Karl, Dick, Gordon and all the rest of the builders of Phase-3B, congratulations on a superb show today. Despite the fact that ESA didn't give us the best ride and "bumped" us in the posterior, it looks like we did it! Today was truly the birth of a new era in amateur satellites and amateur radio. We may now add to our unblemished string of 'firsts' the first non-governmental, non-commercial motor firing in space. I predict that the months of June and July 1983 will go down in the record books as the equal of the first amateur DX bridge over the Atlantic. WELL DONE."

Following Tom's congratulations to the AMSAT-Oscar 10 team questions were asked in reference to the "bump in the posterior", as it had been rumoured that an incident had occurred at separation from the launch vehicle. Subsequently the following official document, dated the 13th July, was released on 15th July by the European Space Agency, Arianespace, Centre National d'Etudes Spatiale (CNES) and AMSAT.

ARIANE LAUNCH L6
ORBIT INJECTION OF OSCAR 10 SATELLITE

The apogee motor firing of (AMSAT) Oscar 10, the radio amateur satellite launched on the 16th of July, took place during the night of 11 to 12 July and injected the satellite successfully into an intermediate orbit of approximately 3900 km perigee, 35 800 km apogee height and 26 degree inclination. A second and final apogee motor firing is scheduled within the next fortnight. All equipment on board the satellite checked out so far including the main transponder with its antennas working perfectly. The firing had been delayed by about three weeks since the satellite's attitude and spin rate, after separation, were not as expected. Indeed, whilst separation and orbital injection of the ECS 1 satellite were perfect the first acquisition of telemetry from the Oscar 10 satellite five hours after launch indicated that there were gross errors in attitude and spin rate. The satellite authority took rapid and effective action to guarantee the immediate survival of the satellite so that the situation could be analysed and further corrective action taken. During the past weeks the AMSAT project authority has established full control of the satellite and brought it into the correct attitude for a first firing of the restartable liquid propellant apogee motor. In doing so the AMSAT project authority has demonstrated the extraordinary operational flexibility of the design of its satellite and of the people who operate it. Examination of the launcher telemetry has shown that the dual launch system SYLDA had functioned nominally and that the original separation parameters (including satellite attitude and spin) had been correct. This fact has later been confirmed by stored satellite telemetry data. Detailed investigation of both launcher and satellite data indicates with a high degree of probability, that 53 seconds after separation the third stage caught up with the satellite, this would explain the attitude and spin rate anomalies observed subsequent to separation. This supposition of a physical contact is reinforced by observation of small shocks registered at that time by launcher vibration sensors and by indications that at least one of the satellite's antennas is slightly damaged. The most likely reason that the third stage caught up with the satellite is that the thrust due to programmed venting of the oxygen tank was significantly higher than predicted and annulled the margins taken for setting up the sequence of orientation manoeuvres. Following separation of each satellite, the Ariane 3rd stage performs an attitude and spin change programme which is then followed by a laterial distancing manoeuvre of this stage. This sequence includes opening and closing of the 3rd stage oxygen vent valves to control residual tank pressure and to provide thrust for the distancing manoeuvre. For future launches the higher residual thrust level and additional margins will be taken into account and the sequence of operations will be adjusted accordingly so that this kind of problem will not be encountered again.

From the above statement it would appear that disaster was very close at hand for Phase-3B. However, that is now of historical interest, and the future now appears very promising. We now await the second burn of the kick motor to place it at its final orbit position with the anticipated transponder turn on scheduled for mid-August.

OSCAR 10 TRANSPONDER FREQUENCIES

MODE B: Uplink 435.025 to 435.175, Downlink 145.975 to 145.825 inverted passband.
MODE: Uplink 1269.05 to 1269.85, Downlink: 436.95 to 436.15 inverted passband.
BEACONS: General 145.810 and 436.020. Engineering 145.987 and 436.040.

UOSAT — OSCAR 9

The following three items are from UOSAT Bulletin-33 posted at 0000 UTC, 16 July 1983 — Tnx to the UOSAT team.

UOSAT SPACECRAFT NEWS

Power budget tests have been carried out on the UOSAT batteries during the last week to assess their capacity state and to assist power management. All non-vital spacecraft systems were switched off to allow the batteries to reach full charge and then a heavy load applied and the battery performance monitored throughout the entire orbit by the on-board computer. The heavy discharge during eclipse was of particular interest. The data has been collected and is being analysed at UOS. It was encouraging to see that the spacecraft continued to operate nominally even at low battery volts. Preliminary analysis indicates that the spacecraft runs with a marginally negative power budget over the weekends when the 2.4 GHz beacon is on in addition to other normal loads with the current sun angle and spacecraft attitude.

The 2.4 GHz beacon will be switched OFF this weekend whilst we complete our analysis. The whole orbit data collection programme was run at a number of times during this week to collect the battery charge information. The 144 MHz beacon was only used for short periods over Europe for most of these runs. The telemetry channels recorded were: 2, 22, 23, 30, 32, 43, 54. The run times were 12:16:20 and 15:19:08 on 13/07/83, 13:27:29 and 16:38:45 on 14/07/83, 13:10:02 and 14:44:50 on 15/07/83. The 16:38:45 one failed due to operational error.

SPACECRAFT ATTITUDE

The spacecraft remains stable in a flat (end over end) spin with a fluctuating +Y/-Y facet temperature gradient of around 55 C to 65 C, this possibly being caused by the HF antennas deployment. Analysis and preparations continue for magnetorquer attitude manoeuvres during next week to reorient the spacecraft spin axis and introduce a slow Z-spin to improve the temperature gradients.

PACSAT TESTS

Preliminary tests have been carried out on UOSAT-Oscar 9 to evaluate the use of the spacecraft in 'PACSAT' demonstrations. This exercise will allow the PACSAT development team to evaluate a number of techniques under consideration for a future PACSAT — an amateur digital communications spacecraft using packet radio. These preliminary experiments have been most encouraging. On orbit 9658, 1196 packets of 8 bytes each (6 data, 2 checksum) were transmitted to UOSAT from Surrey using the 438 MHz command uplink. This link has previously proved difficult for command transmission due to a priority mechanism frequently giving preference to the 144 MHz command uplink. However, in data mode, the problem has been overcome and 762 packets were correctly received by the spacecraft giving a reliability of 63.7 equivalent to over 8000 packets per overhead pass, more than sufficient to fill the UOSAT 16 kilobyte memory. An extra checksum byte will be added to further improve integrity, and an improved acknowledgement system is being designed.

OSCAR 8 REMAINS SILENT

No positive news has been received in recent weeks on the status of the batteries on board Oscar 8. In this instance it is most unfortunate that no news is bad news. Nonetheless all good things come to those who wait and amateur satellite users are renowned for their patience.

CONFERENCE ON PRIVATE SECTOR SPACE RESEARCH

The first annual conference on private sector space research and exploration will be held in Florida 4th to 7th August, 1983 coinciding with the STS8 night launch. Included among the participants are AMSAT, UOSAT, JAMSAT and AMSAT-France. The conference will be devoted to non-governmental space exploration and scientific research designed to further the understanding of the space environment.

SATELLITE PREDICTIONS

I have been approached by a number of people for an inclusion into this column of satellite parameters on a monthly basis. At this juncture I am in two minds as to whether this is in fact a wise use of this column, especially as the predictions are dated by the time they are received. Notwithstanding I am open to further suggestions on this matter and will further research the matter personally. In the meantime current predictions are available each week on the Sunday evening sessions and Bob VK3ZBB can also assist as per the instructions, (Reference Amateur Radio June 1983, page 53).

de Colin VK5HI

AR

UPS AND DOWNS . . . TNX TO VK3ZBB

LAUNCHES

NUMBER	NAME	NATION	DATE OF LAUNCH	PERIOD MIN	APOGEE KM	PERIGEE KM	INCLN DEG	FACILITIES
1983-036A	COSMOS 1454	USSR	22 Apr	89.7	374	181	89.7	SI TM
1983-037A	COSMOS 1455	USSR	23 Apr	97.8	676	648	82.5	SI TM
1983-038A	COSMOS 1456	USSR	25 Apr	709	39 343	613	62.8	SI TM
1983-039A	COSMOS 1457	USSR	26 Apr	89.8	376	180	—	SI TM
1983-040A	COSMOS 1458	USSR	28 Apr	89.1	275	220	82.3	SI TM
1983-041A	GOES 6	USA	28 Apr	1707.4	48 400	33 483	0.5	MW SE EI
1983-042A	COSMOS 1459	USSR	6 May	104.7	1014	942	83.0	SI TM
1983-043A	COSMOS 1460	USSR	6 May	90.1	369	218	70.3	SI TM
1983-044A	COSMOS 1461	USSR	7 May	93.3	457	438	65	SI TM
1983-045A	COSMOS 1462	USSR	17 May	89.5	318	224	82.3	SI TM
1983-046A	COSMOS 1463	USSR	19 May	103.5	1570	307	82.9	SI TM
1983-047A	INTELSAT V	USA	19 May	634.2	35 980	166	23.4	CS MCS*

KEY: * *Initial Orbit Elements*
SI — Scientific Instruments
TM — Telemetry
MW — Meteorological Data
EI — Earth Imaging
CS — Communication Systems
MCS — Maritime Communication Systems
SE — Space Environment

ATS1. As at 13 April the location of ATS1 was 164.42° E, 5.009° S. Frequencies 136.549628 and 136.349385 MHz.

THE FOLLOWING SATELLITES RE-ENTERED OR WERE RECOVERED

1980-15A	TRANSEI 4	12 May
1980-83A	COSMOS 1215	12 May
1982-76A	COSMOS 1397	18 May
1983-012A	COSMOS 1442	11 Apr
1983-024A	COSMOS 1449	15 Apr
1983-026A	STS 6	9 Apr
1983-029A	COSMOS 1451	22 Apr
1983-036A	COSMOS 1454	22 May
1983-040A	COSMOS 1458	11 May
1983-043A	COSMOS 1460	20 May

Also forty seven other objects.

QSP

ARRL QN Signals For CW Net Use

CW ENTHUSIASTS

Refer "How's DX" August for information about the CW Net. The following QN code may prove useful.

*QNA** Answer in prearranged order.
*QNB** Act as relay Between ___ and ___.
QNC All net stations Copy. I have a message for all net stations.
*QND** Net is Directed (controlled by net control station).
*QNE** Entire set stand by.
QNF Net is Free (not controlled)
QNG Take over as net control station.
QNH Your net frequency is High.
QNI Net station report in. I am reporting into net (Follow with a list of traffic or QRU.)
QNJ Can you copy me? Can you copy ___?
*QNK** Transmit messages for ___ to ___.
QNL Your net frequency is Low.
*QNM** You are QRMing the net. Stand by.
QNN Net control station is ___. What station has net control?
QNO Station is leaving the net.
QNP Unable to copy you. Unable to copy ___.
*QNQ** Move frequency to ___ and wait for ___ to finish handling traffic. Then send him traffic for ___.
*QNR** Answer ___ and Receive traffic
QNS Following Stations are in the net.* (Follow with the list.) Request list of stations in the net.
QNT I request permission to leave the net for ___ minutes.
*QNU** The net has traffic for you. Stand by.
*QNV** Establish contact with ___ on this frequency. If successful, move to and send him traffic for ___.
QNW How do I route messages for ___?
QNX You are excused from the net.* Request to be excused from the net.
*QNY** Shift to another frequency (or to ___ kHz) to clear traffic with ___.
QNZ Zero beat your signal with mine.

* For use only by the Net Control Station.

Notes on Use of QN Signals

The QN signals above are special ARRL signals for use in amateur CW nets only. They are not for use in casual amateur conversation. Other meanings that may be used in other services do not apply. Do not use QN signals on phone nets. Say it with words. QN signals need not be followed by a question mark, even though the meaning may be interrogatory. AR

CONTESTS

Reg Dwyer, VK1BR
FEDERAL CONTEST MANAGER
PO Box 236, Jamison, ACT 2614

CONTEST CALENDAR

SEPTEMBER

3-4	*DARC Corona "CORONA" 10 m RTTY*
4	*Bulgarian CW Test*
10-11	*G QRP Activity*
10-11	*DARC WAE Phone Test*
17-18	*VK Novice Test*
17-18	*Scandinavian CW +++*
24-25	*Scandinavian Phone +++*
24-25	*12th JLRS Test*

OCTOBER

1-2	*VK/ZL Phone Contest*
8-9	*GARTG SSTV Test*
15-16	*VK/ZL CW*
22-23	*YLRL Anniversary CW Party*
22-23	*CLARA AC/DC Test*
29-30	*CQ WW DX CW Test*

NOVEMBER

5-6	*YLRL Anniversary Phone Party*
12-13	*DARC WAE RTTY Contest*
12	*ALARA Contest*
26-27	*CQ WW DX CW Test*

All contests marked with +++ are not yet confirmed . . .

VK NOVICE CONTEST

Don't forget the VK Novice Contest in September. Let's generate some interest for this contest which had such a poor showing last year. This contest is a marvellous opportunity for all to participate and gain awards. The maximum speed for CW has been reduced to 10 WPM to encourage this mode.

This contest was originally the Westlakes Radio Club Contest, usually held in September, and is designed to encourage Novices to gain skills in contest operation and to improve their abilities with possible thought to assisting in their upgrading to full call licences. The contest provides excellent opportunities for all Novices to compete on an even footing with all comers. The majority of points scored are contacts with novice and club stations and the minor points are scored with contacts with full call licences.

The contest will take place from 0800 UTC 17th September to 0759 UTC 18th September, 1983 for all novice and full call amateurs.

OBJECTS OF THE CONTEST — To encourage contest working between amateur stations in Australia, New Zealand and Papua-New Guinea during a 24-hour period with special emphasis on contacts with novice and radio club stations.

STATIONS ELIGIBLE — Only stations in VK, ZL and P2 call areas may enter. No stations outside these areas are permitted to be worked or entered in a log. Except for radio clubs, no multi-operation working is allowed. Stations in your own call area as well as other call areas may be worked.

CONTEST BANDS — Only the novice allocations on 80, 15 and 10 metres may be used. This applies to full call stations as well. No crossband operation is allowed. Contacts should be phone or CW. CW operation: Maximum speed ten words per minute. To encourage the use of CW for the betterment of both novice and those operators who are not as proficient as maybe they should be, the maximum transmitting speed of CW will be limited to ten words per minute.

SCORING — Transmitting: For contacts with a Novice station — five points. For contacts with a radio club station — ten points. For contacts with a full station — two points. Listening: Novice/Novice contact — five points. Full Call/Novice — two points. Novice/Full Call — two points. Full Call/Full Call — two points. Any contact with a radio club — 10 points.

CALL PROCEDURE — Phone call "Call Novice Contest" and on CW "CQN". Stations may be worked only once per mode per band.

EXCHANGE — Phone RS report plus three figures. These three figures may start anywhere between 001 and 999 but when 999 is reached you must start again at 001. CW, RST report plus three figures on the previous basis. Radio club stations will add the letter "C" after the number above.

CONTEST SECTIONS — (a) Novice/Full Call Phone. (b) Novice/Full Call CW. (c) Listeners

LOGS — Logs must show UTC time, station worked, band, mode, number sent, number received, score claimed and score tally for each page. A front sheet must be attached showing the following: Name of operator, callsign, address, section entered and points claimed. Logs are to be sent to the Federal Contest Manager, Box 236, Jamison, ACT 2614, and must be post-marked no later than 12th October, 1983, and received no later than 29th October, 1983.

CERTIFICATES — Certificates will be awarded to the highest score from Novice Phone, Novice CW, Radio Club Phone, Radio Club CW, Full Call Phone, Full Call CW, Listener Phone and Listener CW in each division. A trophy to be known as "The Keith Howard VK2AKX Trophy" will be awarded to the entrant with the highest aggregate scores in the (a) and (b) overall sections and will be held by the winner for a period of twelve months. The decision of the Federal Contest Manager is final and no correspondence will be entered into.

THE 12TH JLRS PARTY CONTEST

PHONE — Start Sat 24 Sept 1983 to 0300 UTC; ends Sun 25 Sept 1983 at 0300.

CW — Start Sat 1 Oct 1983 at 0300 UTC; ends Sun 2 Oct 1983 at 0300.

PURPOSE — JLRS shall sponsor the Annual JLRS Party Contest to promote the activity of women amateur radio operators and to further co-operation among them.

ELIGIBILITY — All licensed men and women operators throughout the world are invited to participate.

OPERATION — All bands and all modes may be used in accordance with operator and station licences. Crossband operation is not permitted. All contacts must be made from the same location. Net contacts and contacts with mobile stations or club stations will not count

PROCEDURE — OMs: "CQ YL". YLs: "CQ CONTESTS". CW: "CQ TEST".

EXCHANGE — OMs: RS or RST and QSO number starting at 001. YLs: RS or RST and QSO number starting at 2001. JLRS members: RS or RST and QSO number starting at 5001. Separate consecutive QSO numbers must be used in PHONE and CW contest.

ENTRY — Entry in each contest is limited to one of the following two classes: A. more than four bands; B. less than three bands.

SCORING — 1. PHONE AND CW will be scored as separate contests. Submit separate logs for each contest. 2. Each contact with the same station on different bands will be counted. 3. OMs: Score one point for each contact with YL and five points for each contact with a member of JLRS. YLs: Score one point for each contact with OM and five points for each contact with YL. 4. Multiply the number of contact points by the total number of different prefixes worked in each band.

LOGS — Copies of all PHONE and CW logs must show claimed scores, band, mode, RST, callsigns worked and power transmitted, be signed by the operator, and be postmarked not later than 20th October 1983. Be sure your log is legible. Please PRINT or TYPE. Send logs to the Contest Custodian, Kuni Kan JA1YL, 4-5-38-406 Hyakunincho, Shinjuku-ku, Tokyo 160, JAPAN.

CERTIFICATES — All participants will receive a Certificate of the Contest Participation and a list of the result of the contest in December 1983. Then stickers shall be added to the Certificate at every participation for ten years from the issue of the Certificate.

SUGGESTED CONTEST FREQUENCIES — PHONE: 14.160, 14.280, 21.280 and 28.600 MHz. CW: 14.080, 21.080 and 28.080 MHz.

(A copy of the list of callsigns of the 500 members of JLRS can be obtained (with SASE) from Marlene VK5QO.)

ALARA CONTEST

ELIGIBILITY — All licensed operators throughout the world are invited to participate. Also SWLs.

OBJECT — PARTICIPATION! YL works everyone, OM works YLs only. One contest (combined phone and CW) run over 24 hours.

STARTS — Saturday 12th November 1983 at 0001 hours UTC.

ENDS — Saturday 12th November 1983 at 2359 hours UTC.

FREQUENCIES — All bands may be used. The following are suggested frequencies for easier location of contacts:

CW	28.100 to 28.110	PHONE	28.480 to 28.520
	21.125 to 21.135		21.180 to 21.200
	14.050 to 14.060		21.350 to 21.370

7.010 to 7.020	14.180 to 14.200
3.525 to 3.535	14.280 to 14.300
	7.100 to 7.120
	3.570 to 3.590

OPERATION — Phone and CW operation: Each station may be counted twice on each band for credit; once on phone and once on CW. All contacts must be made in accordance with operator and station licence regulations. No net or list operations, no crossmode. No repeater contacts may be claimed.

PROCEDURE — Phone: call "CQ ALARA CONTEST"; CW: call "CQ TEST ALARA".

EXCHANGES — ALARA member: RS or RST, serial number starting at 001, ALARA member, name. YL non-member or OM: RS or RST, serial number starting at 001, name.

SCORING — Phone: Ten points for ALARA Club Stations Contacted, VK2DYL, VK3DYF. Five points for ALARA member contacted. Three points for YL non-member contacted. One point for OM contacted. CW: Double all points for CW contacts. SWL: Five points for ALARA member logged. Three points for YL non-member logged.

LOGS — Single log entry. Logs must show: date/time UTC, band, mode, callsign worked, report and serial number sent, report and serial number received, name of operator of station worked, and points claimed.

SAMPLE LOG —

Date/Time UTC	Band MHz	Mode	Callsign	RS (T) and serial No sent	RS (T) and serial No recd	Name	Points
12/11 0135	28	SSB	VK3DML	59001	58028	Margaret	5
0141	21	SSB	VK2DYL	59002	59037	Geraldine	10

LOGS MUST BE SIGNED Logs also to show full name, callsign and address of operator, and show final score (points claimed).

Logs must be ligible, either typed or printed No carbon copies. No logs will be returned. Decision of the Contest Manager will be final. Logs must be received by the Contest Manager **by 31st December 1983**.

CONTEST MANAGER — Mrs Margaret Loft VK3DML, 28 Lawrence Street, Castlemaine, Victoria, Australia 3450.

A TROPHY — Will be awarded for the highest aggregate score over five years, commencing 1983, of a licensed YL operator (not necessarily Australian).

CERTIFICATES — Will be awarded to the following:

Top scorer overall

Top score ALARA member in each country and VK call area.

Top score YL non-member in each Continent

Top score OM in each Continent

Top score SWL in each Continent

Top score VK novice.

The ALARA club stations will not be eligible for a certificate or trophy.

21/28 MHZ RSGB TELEPHONY CONTEST 1983

TRANSMITTING SECTION

ELIGIBLE ENTRANTS — (a) British Isles: RSGB members only. (b) Overseas (including EI). All licensed amateurs.

PERIOD — 0700 to 1900 UTC Sunday 9 October 1983.

SECTIONS — (i) Single-operator. (ii) Multi-operator, multi-band only.

FREQUENCIES/MODE — 21 and 28 MHz, phone only. Entrants are requested not to operate in the bands 21.400 to 21.450 MHz; 28.200 to 28.400 MHz and 29.100 to 29.700 MHz.

EXCHANGE — RS report and serial number starting at 001.

SCORING — Three points for each completed contact with a station in the British Isles. Multipliers will be British Isles prefixes which are: G2, G3, G4, G5, G6, G8, GD2, GD3, GD4, GD5, GD6, GD8, GI2, GI3, GI4, GI5, GI6, GI8, GJ2, GJ3, GJ4, GJ5, GJ6, GJ8, GM2, GM3, GM4, GM5, GM6, GM8, GU2, GU3, GU4, GU5, GU6, GU8, GW2, GW3, GW4, GW5, GW6, GW8.

Contacts with GB stations will not count for points or multipliers.

For all entrants the total score will be the number of points on each band added together, times the number of multipliers on each band added together. Unmarked duplicate contacts will be penalised at ten times the points claimed. Entries containing five or more such duplicate will be automatically disqualified.

LOGS — Log sheets to be headed: date/time UTC; station worked; RS and serial number sent; RS and serial number received; multiplier; points claimed. Separate logs must be submitted for each band a summary sheet showing the multipliers worked on each band must be included.

DECLARATION — Each entry must be accompanied by the following declaration, signed and dated: "I declare that this station was operated strictly in accordance with the rules and spirit of the contest and agree that the decisions of the Council of the RSGB shall be final in all cases of dispute".

ADDRESS FOR LOGS — RSGB HF Contest Committee, c/o Mr P Miles, PO Box 73, Lichfield, Staffis, England.

CLOSING DATE FOR LOGS — Entries must be received by 1 December 1983.

AWARDS — Certificates of merit will be awarded to the leading station in each country and to the leading station in the multi-operator section.

RECEIVING SECTION — Rules as for the transmitting section except as varied below.

ELIGIBLE ENTRANTS — (a) British Isles: RSGB members only. (b) Overseas (including EI); all SWLs.

Note that holders of transmitting licences for frequencies above 30 MHz may enter the receiving section.

SCORING/MULTIPLIERS — SWLs should only log British Isles stations in contact with overseas stations taking part in the contest. Scoring and multipliers as the transmitting section.

LOGS — Logs to be headed: date/time UTC; callsign of station heard; callsign being worked, multiplier; points claimed. A summary sheet showing multipliers heard on each band must be included.

Note: In the column headed station being worked, the same callsign may only appear once in every three contacts logged except when the logged station is a new multiplier for the receiving station.

DECLARATION — Each log must be accompanied by the following declaration: "I declare that this station was operated within the rules of the contest and I do not hold a transmitting licence for frequencies below 30 MHz".

AWARDS — Certificates of merit will be awarded to the leading entrants in each overseas country.

21 MHZ RSGB CW CONTEST 1983 RULES

Special note for both sections: entrants are particularly requested to use standard size (A4) log sheets.

TRANSMITTING SECTION

ELIGIBLE ENTRANTS — Single operator stations only. British Isles entrants must be members of RSGB. Overseas entrants, all licensed amateurs.

PERIOD — 0700 to 1900 UTC Sunday 16 October 1983.

SECTIONS — (a) British Isles section. (b) QRP British Isles section. British Isles stations using less than 10 W input. (c) Overseas section (including EI). (d) QRP Overseas section. Overseas stations using less than 10 W input

FREQUENCY/MODE — 21 MHz. CW only. Entrants are requested not to operate in the band 21.075 to 21.125 MHz.

EXCHANGE — RST report plus a progressive QSO number starting with 001.

SCORING — Overseas stations. Each completed contact with a British Isles station will score three points. The final score is the number of British Isles prefixes multiplied by the total number of points. British Isles prefixes are: G2, G3, G4, G5, G6, G8, GD2, GD3, GD4, GD5, GD6, GD8, GI2, GI3, GI4, GI5, GI6, GI8, GJ2, GJ3, GJ4, GJ5, GJ6, GJ8, GM2, GM3, GM4, GM5, GM6, GM8, GU2, GU3, GU4, GU5, GU6, GU8, GW2, GW3, GW4, GW5, GW6 and GW8. Contacts with GB stations will not count for points or multipliers.

DUPLICATE CONTACTS — Unmarked duplicate contacts for which points have been claimed will be penalised at ten times the claimed points. Entries containing more than five such duplicates will be automatically disqualified.

LOGS — Log sheets to be headed: date/time UTC; station worked; RST and serial number sent; RST and serial number received; multiplier; points claimed. They should be submitted with a cover sheet indicating antenna, equipment power used and must include a separate list of countries worked as specified in scoring.

DECLARATION — Each entry must be accompanied by the following declaration, signed and dated: "I declare that this station was operated strictly in accordance with the rules and spirit of the contest and agree that the decision of the Council of the RSGB will be final in all cases of dispute".

ADDRESS FOR LOGS — RSGB HF Contests Committee, c/o D S Booty, 139 Petersfield Avenue, Staines, Middx TW18 1DH, England.

CLOSING DATE FOR LOGS — 31 December 1983.

AWARDS — Certificates of merit will be awarded to the leading station in each overseas

country.

RECEIVING STATION — Rules as transmitting section except where specified below.

ELIGIBLE ENTRANTS — (a) British Isles: RSGB members only. (b) Overseas (incuding EI): all SWLs.
Holders of transmitting licences for frequencies above 30 MHz may also enter the receiving section.

SCORING — Overseas SWLs should only log British Isles stations in contact with overseas stations participating in the contest. Scoring and multipliers as in transmitting section.

LOGS — Log sheets to be headed; date/time UTC; callsign of station heard; callsign of station being worked; multiplier; points claimed.
Note: In the column headed station being worked, the same callsign may only appear once in every three contacts except when the logged station is a new multiplier for the receiving station.

DECLARATION — Each entry should be accompanied by a completed declaration: "I declare that this station was operated within the rules of the contest and that I do not hold a transmitting licence for frequencies below 30 MHz".

AWARDS — Certificates of merit will be awarded to the leading entrant from each overseas country.

BRITISH AMATEUR RADIO TELEPRINTER GROUP

1983 SPRING CONTEST RESULTS

SINGLE OPERATOR SECTION

NO	CALLSIGN	POINTS	TOTAL QSO's
1.	ON4UN	716690	365
2.	YU7AM	341736	276
3.	I1HUH	339600	226
4.	DJ6JC	289100	187
5.	Y25DL	288696	197
6.	YB2BLI	280578	164
7.	HB9AAA	280200	161
8.	SM6ASD	270940	197
9.	W3FV	243212	179
10.	W2IUC	225792	201
11.	GI4AHP	223380	206
12.	YO2IS	211684	201
13.	KB2VO	195506	158
14.	I4JXE	182188	151
15.	VK2SG	167570	158
16.	I0UIQ	164604	167
17.	I8JRA	159510	132
18.	K4AGC	158796	147
19.	GM3ZXL	158148	130
20.	W3FIZ	154100	118
21.	I0ZSG	142400	166
22.	WB3HAZ	141858	108
23.	UT5RP	137350	215
24.	ON7EP	133080	105
25.	DL9MBZ	131216	113
26.	K0JH	126852	121
27.	9M2CR	121968	121
28.	K6WZ	119048	142
29.	WD5ELJ	118320	156
30.	JA2VFW	109300	101
31.	GW3EHN	103000	106
32.	W6JOX	101332	118
33.	G4NYO	96000	84
34.	JR2CFD	94188	79
35.	JR2TZL	92610	93
36.	SM5BKA	91800	74
37.	I0WQP	88920	127
38.	OK2SPS	88696	106
39.	VE2AXO	87710	99
40.	LA7AJ	86940	74
41.	OH8TA	82560	148
42.	VK1GM	74400	86
43.	JA1BYL	73800	72
44.	VK2BQS	72068	80
45.	DK1BX	71516	69
46.	SM5FUG	70684	74
47.	OH2BDN	69156	125
48.	DK9CK	66144	52
49.	KB9DM	62968	66
50	PY2ERA	61440	100
51.	DL8QP	60420	63
52.	WB4UBD	60104	63
53.	SM7LSU	59544	67
54.	PY6ACP	56440	70
55.	DF9XI	56364	87
56.	WB3IGR	56160	44
57.	VE8CM	55020	78
58.	OK1MP	53690	36
59.	N7AKQ	50928	113
60.	OK1AWC	48112	58
61.	VE7VP	47740	54
62.	W2KHQ	45954	65
63.	ON6ZM	45760	56
64.	SM7ABL	42630	47
65.	YU2CB	41664	51
66.	DF5BX	39234	67
67.	JR6AG	38976	45
68.	WA6WGL	38760	50
69.	WA3ZKZ	37590	49
70.	Y37UF	36120	42
71.	G4MKO	32660	42
72.	SM6AEN	32344	46
73.	G4NJW	30144	28
74.	XT2AU	28130	37
75.	W3AOH	27360	34
76.	OZ1GRF	26180	39
77.	IK1AAW	25200	26
78.	JH2PDS	24886	29
79.	DJ8WCY/P	22288	47
80.	SM7BGE	22088	42
81.	OH5YW	21630	23
82.	DL3YBU	20480	24
83.	F3IJ	19418	23
84.	YO8FR	16942	71
85	JF2PZH	16768	32
86.	W7CBY	16586	33
87.	Y55ZF	14490	33
88.	SM0BYD/7	14436	21
89.	PY6SL	13468	17
90.	G3RDG	12996	30
91.	TI2DO	12900	26
92.	ON7EU	12492	31
93.	Y53VA	12236	34
94.	Y71SH	10008	39
95.	K2TY	8736	24
96.	YO2AC	7548	26
97.	PY2FWX	5808	14
98.	F3PI	4928	16
99.	SM5AAY	4860	14
100.	HA6VX	2512	13
101.	OK3TZL	1596	9
102.	W8TCO	720	4
103.	Y59ZF	672	4

MULTIPLE OPERATOR SECTION

1.	LZ1KDP	441604	274
2.	OH2AA	413996	310
3.	G3ZRS	378566	249
4.	LZ2KRR	310460	246
5.	GW4RDO	182700	141
6.	OK1RJB	159256	119
7.	G4ALE	156996	118
8.	HA5KBM	133052	131
9.	HA6KVD	102700	107
10.	OK3KJF	92312	114
11.	KD4RT	73950	73
12.	OK3KGI	69888	112
13.	G4LLR/A	63900	86
14.	KL7RS	25116	50
15.	Y83KMF	20256	33
16.	SM6LTO	5408	24

The Contest Manager gratefully acknowledges the receipt of check logs from the following stations: DF7FB, EI3CN, G4KZE, G8CDW, K4VDM, PA0ANK, JM1OFJ, Y24NL, Y24UD/A, Y47YM, Y75OL and Y2ZN. These logs are most useful and in a number of cases, essential to claims for certain awards so many thanks for your help.

SHORT WAVE LISTENER SECTION

NO	CALLSIGN	COUNTRY	POINTS	TOTAL QSO's LOGGED
1.	ONL-5566	Belgium	354348	233
2.	OZ-DR 2135	Denmark	312984	221
3.	I1-053GE	Italy	261096	175
4.	NL-4483	The Netherlands	194668	119
5.	John Matthews	United States	111936	92
6.	OK2-21478	Czechoslovakia	95900	170
7	FE-3700	France	66290	71
8.	Y2-19600/A	German Dem Rep	51768	67
9.	BRS-31976	England	32214	35
10.	FE-1107	France	27432	44
11.	W Ludwig	German Fed Rep	13160	14
12.	NL-5288	The Netherlands	9880	16
13.	HE9DFN	Switzerland	2310	13

A total of 144 Logs were received as a result of the 1983 Contest and a total of eighteen new Quarter Century Awards will be issued as a direct result of the Contest.

During the Contest, RTTY activity took place from the following Countries: Alaska, Argentina, Austria, Australia, Barbados, Belgium, Brazil, Bulgaria, Canary Islands, Canada, Chile, Costa Rica, Colombia, Czechoslovakia, Denmark, Dominican Republic, Eire, England, Finland, France, French Guyana, German Democratic Republic, German Federal Republic, Greece, Greenland Guernsey, Hawaii, Hungary, Indonesia, Israel, Italy, Japan, Kenya, Kuwait, Lebanon, Liechtenstein, Luxembourg, Macau, Malaysia, Martinique, Mauritania, Mexico, Monaco, Morocco, Namibia, Northern Ireland, The Netherlands, New Caledonia, New Zealand, Norway, Philippines, Puerto Rico, Romania, Sardinia, Saudi Arabia, Scotland, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Togo Rep, United States of America, USSR, Ukraine, United Nations (Geneva), Upper Volta Rep, Vanuatu, Venezuela, Wales, Yugoslavia and Zimbabwe.

VP2E 1983 — FOURTH ANNUAL CONTEST EXPEDITION TO ANGUILLA

The Anguilla Contest Team will be active from the West Indies island of Anguilla (VP2E) from 21 November to 14 December, 1983. This will include contest operations in the CQWW CW DX Contest, the ARRL 160 Metre Contest, and the ARRL 10 Metre Contest. During non-contest periods they will be active on all bands 160-6 metres on CW and SSB.

CQWW CW DX CONTEST: 26-27 NOVEMBER, 1983

During the CQWW CW DX Contest, several single-operator, single-band contest efforts will be active simultaneously using the call 'VP2E'. These efforts will be using kilowatt stations with monoband yagi antennas on 40 through 10 metres, and vertical antennas on 80 and 160 metres. It's hoped to have operators on all bands (160 through 10 metres) during the contest: look around 20 kHz and 30 kHz above the bottom of each band.

Note that sunset will occur at approximately 2110 UTC and sunrise will occur at approximately 0950 UTC on Anguilla during the CQWW CW DX Contest.

This will be the first time that Anguilla has been available on CW to DX stations in an international DX contest.

ARRL 10 METRE CONTEST: 10-11 DECEMBER, 1983

During the ARRL 10 Metre Contest the group will be active on CW and SSB as a multi-operator, single transmitter station using the call 'VP2E'. They plan to operate above and below the US phone band as dictated by propagation.

LORD HOWE

The Down Under DXers Contest Club intend to activate Lord Howe Island for CQ World Wide phone test in October, 1983. The group will be on the island from 23 October to 2 November, and at this stage will be using the callsign VK2WU portable LHI. QSLs go to Les Cullen, VK2WU, PO Box 31, Winmalee, NSW, Australia, 2777; or the bureau.

They intend to be using yagis on 10, 15 and 20; and wire antennae for 40, 80 and 160. Listen for them on the usual phone frequencies on the high bands; on 80 they will Tx 3.695 and Rx 3.805+ MHz; on 160 metres they will be in the DX windows.

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EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

The statistics for the May Novice examinations were released recently. There are no surprises in these figures. As usual, pass rates are highest for CW sending (79.9%) and higher for regulations (64.3%) than for theory (49.9%). The theory figure is down a bit on the rate for last November (54.4%), but the May figures are usually lower than November. The range is from 46.7% for VK3 to 54.8% for VK7. These figures are significantly higher than the corresponding figures for AOCP, as previously discussed.

The big difference this year is the drop in the number of candidates sitting. There are always fewer at the May exam than in November — presumably because many classes aim towards the November exam. But the 489 entrants this time is the lowest number for some time. It will be interesting to see if this is just a temporary drop or a continuing trend.

As a result of recent comments about the place of CW in amateur licensing, I have had a fresh look at CW pass rates. As we know the pass rate for sending is always higher than for receiving at any exam — but why should the pass rate of 5 WPM be consistently much higher than for 10 WMP. Here are the figures for the last 10 exams.

Level	Total entrants	Passes	Percentage	Range
AOCP 10 WPM	3488	1337	38.3%	25.1% May '82 46.4% Aug '82
NAOCP 5 WPM	2881	1592	55.3%	50% Feb '82 64.6% Aug '82

The difference at each exam is highly significant. Lowest difference — February 1982 with 40.1% and 50% respectively, and highest difference — May 1982 with 25.1% and 59.5% respectively, but there does not appear to be any overall rise or fall. There are several possible explanations. Perhaps there is more incentive for a potential novice to pass, since without the CW, he/she cannot gain a licence. Perhaps more people sit for 10 WPM 'for practice' without really being ready for it, knowing that even if they fail, they can still continue as a limited operator.

Unfortunately we do not know how many entrants make more than one attempt or the distribution of licences among those entering for either level. One would think that those who have previously passed 5 WPM would have little trouble passing 10 WPM, and that this would raise the pass rate.

Perhaps there is room here for some of the clubs to put an effort into helping members with the CW. I know a number of individuals are giving considerable help to a few friends, and that the broadcast practice sessions are very useful, but in what I have heard of classes the CW does seem to be a bit of an afterthought. The only group which has told me they are running specific Morse code classes is in Elizabeth, VK5. *Are there any others?* I would be interested to hear pass rate figures from groups which do run classes.

If anyone wishes to look at the exam statistics more closely, copies can be obtained from the Executive Officer or from me (QTHR). I can also be reached on the Education Net which is now running on Thursday evenings at 11.30 UTC, about 3.685 MHz. The aim of the net is to bring together amateurs who are involved in the running or organising of classes, and to offer support especially to those who are new in the field. However, any comments are welcome. I realise that the frequency is out of the Novice Band — but I do not see it as a forum for discussion of early questions or as a 'school of the air'. If someone else would like to start up this kind of net, I am sure it would be popular. Perhaps it already exists. Tell me about it.

73 Brenda VK3KT

AR

CLUB CORNER

GOLD COAST AMATEUR RADIO SOCIETY

The Sixth Annual Gold Coast Hamfest will be held on Saturday 12th November, 1983. The venue, once again, will be the Albert Waterways Community Centre, at Broadbeach, in the heart of the Gold Coast.

This is now one of the major events on Australia's amateur calendar, and we attract visitors from all over Queensland and interstate.

There will be the usual trade displays, and demonstrations of all facets of amateur radio, plus, stalls and displays for the ladies, and games and prizes for the children. A Dinner/Dance will be held in the evening, with a full nights dancing and entertainment arranged.

John Webber, VK4NNE
HONORARY SECRETARY, HAMFEST ORGANIZER

WA
RR
IS COMING!!

VK3 WIA NOTES

Peter Drury, VK3JN
412 Brunswick Street, Fitzroy, Vic 3065

WORLD COMMUNICATION YEAR ACTIVITIES

At least three clubs in Victoria have organised activities in VK3 as part of WCY:

The Eastern and Mountain District Radio Club will hold its Communications Expo '83 — a combined exhibition and hamfest — at the Nunawading Civic Centre on Saturday 3rd September. One of its main aims is to educate the general public about amateur radio, so come along and bring a friend to share your day with you.

The Northwest Zone will open its new clubrooms at the Mildura Airport on 3rd September. This represents the culmination of a lot of hard work by a very small band of people. Visitors to the opening will be most welcome.

The Shepparton and District Amateur Radio Club, in conjunction with the Northeast Zone, has chosen 11th September for a combined field day to be held at Mooroopna, 3.2 km west of Shepparton. The events commence at 10.00 am local at the Mooroopna Scout and Guide Complex in Echuca Road, Mooroopna. Talk-in frequencies are: 3.596 MHz, 28.470 MHz and 146.650 MHz (repeater 1). Make it a family day: wives and children are especially welcome.

WIA BROADCASTS

It is very gratifying to see the number of news items which have been sent directly to the broadcast news post office box following some minor problems earlier. We advise that the address is now: Boradcast News, PO Box 308, Cheltenham, Vic 3192.

Plans are also well advanced, we are told, for the re-broadcasting of the Sunday morning broadcast somewhat later in the week. We'll keep you advised on that as news comes to hand.

A few gaps still remain in the divisional record of past presidents, and help is sought from anyone who can supply authoritative information. We're trying to determine who were the Victorian Presidents for the years 1921, 1922, 1926, 1927, 1928 and 1932. If you can possibly help, please contact the Divisional Historical Officer, John Adcock, VK3ACA.

The VK-ZL Contest now has a new manager. The Wireless Institute Federal Executive has accepted the offer of Greg Williams VK3BGW to fill this vacancy. Greg is also the Victorian Division Awards Manager, and has a number of ideas to ensure that VK3 wins the Remembrance Day Contest, this year.

The division notes with pleasure the upsurge of interest in the RTTY transmission mode. One reason for this is unquestionably the current availability of Siemens Model 100 Teleprinters. These are most readily obtained by contacting the divisional headquarters at 412, Brunswick Street, Fitzroy.

Amateurs operating RTTY on 2 metres in the Melbourne area have the benefit of operating via VK3RTY repeater, owned by the EMDRC. This unit is located on Mount Dandenong with an output frequency of 147.350 MHz, Duplex B. The repeater is accessed by sending a space character in Baudot code at the amateur standard of 45 45 Baud, with 170 Hz shift. The repeater also has the ability to transmit standard messages, on command, and has on file information such as test tones, test messages, and recorded information on the Victorian Division and the Eastern and Mountain Districts Radio Club. This informatin is updated at regular intervals, and provides an additional news outlet between Sunday morning broadcasts.

Finally for this month, a couple of notes for zone and club officials in VK3. First: This column is available to you — if you have items or pictures which you would like to be published in the column then please send them to me, QTHR.

Lastly a reminder that the Club and Zone Net is held every Sunday at 1000 UTC on 3.605 MHz plus or minus QRM. Surely it's in the best interests of your club or zone members that you participate.

See you all next month. 73
Peter VK3JN

AR

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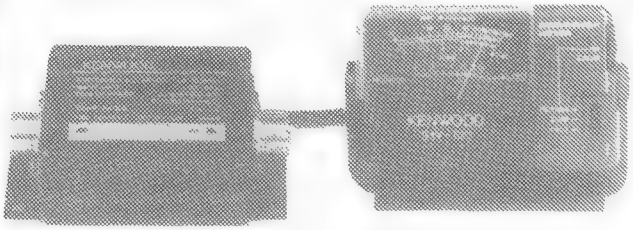

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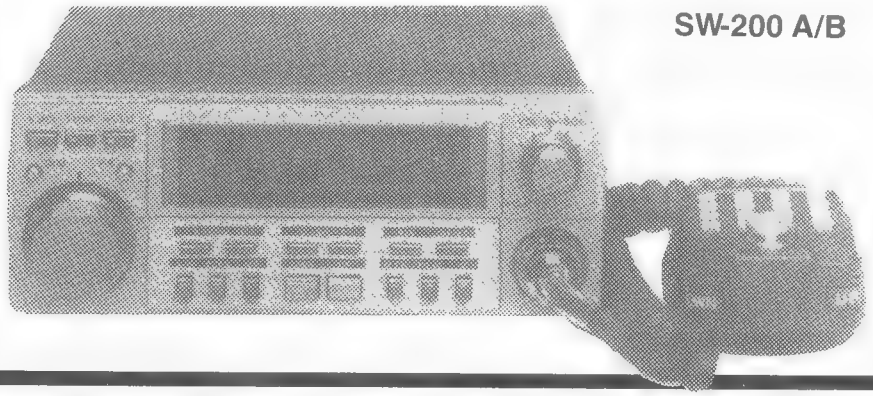

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FORWARD BIAS

VK1 DIVISION

John MacPhee, VK1NEN
PUBLICITY OFFICER AND
FOREWARD BIAS EDITOR
36 Kavel Street, Torrens, ACT 2607

As I mentioned in my last FB column, in July AR a lot of activity has been happening in the nations capital, (not all political). Our ATV is well on the way, and I am pleased that Bill VK1MX has giving me a report on the groups activities. So without further ado here is Bill's report.

ATV UPDATE

Earlier notes in this column advised of the creation of an ATV group in VK1, following a visit by the VK3 ATV "Roadshow" gang. The group now consists of eight members and enjoys sub-committee status within the Division. After an initial flurry of activity, progress has been slower than we would have wished, largely through supply problems with minor, but key, components. The resulting delay meant that the commencement of the 1983 academic year caught up with some members, enforcing postponement of their transmitter construction. Sufficient components for fourteen VK3ATY transmitters have been obtained and at least five are now operational.

Simplex trials have been conducted over recent weeks, with results becoming increasingly promising as our understanding of the mode, the equipment and UHF propagation grows. These trails have unfortunately confirmed fears that the hilly Canberra terrain will restrict simplex operation. We have therefore been obliged to accelerate planning for the 50 cm repeater. Luckily, simplex trials from the proposed repeater site promise useful signals at most VK1 locations, provided that adequate attention is paid to antenna location and design, probably with some degree of pre-amplification.

Prior to commencing repeater design, contact was established with the ATV fraternity in VK3, 4 and 5.

Their assistance is gratefully acknowledged. Our proposed site sports a 30 metre tower and already houses one of the 2 metre FM repeaters. The plan calls for the erection of a modified corner reflector, which last saw commercial service on 80 MHz, at the 15 metre level. This will give the repeater a good sight of Canberra and an antenna beam-width to suit. The receiver design is expected to make use of a commercial video-chain, after requisite mast-head amplification and down-conversion. The transmitter design is expected to be relatively conventional, with output power being determined by the possible availability of a linear. 240 VAC power is available on site. However, the owner of the site uses it for very esoteric work indeed and our residency is conditional upon meeting very stringent degrees of harmonic suppression; -180 dB at 2300 MHz! Liberal use of inter-digital filtering and a chinese box-puzzle approach to packaging will hopefully provide the answer.

Housekeeping tasks will be assigned to a micro-processor (what else). This approach will enable us to provide most of the facilities available elsewhere, notably on the Adelaide machine, including user-selectable functions such as colour-bar generation, received signal strength reports, walking-board displays etc. A 2 metre transceiver will also be incorporated, both to facilitate control and to provide full duplex audio. Given that most of the hardware will be already available, we also intend to install a message-storage and retrieval facility, handling both Baudot and ASCII transmissions. Output will be by walking-board display, upon reception of the addressee's security code. This facility should widen the use of the repater beyond the ATV enthusiast to any station equipped with RTTY or a computer. More details as they become available.

Anyone wanting further information about the VK1 ATV activity, should contact the group's co-ordinator, Bill VK1MX, QTHR.

Thanks Bill for your most informative and interesting report. I look forward to receiving your next one. Any other group with information that I could use in this column please forward it to me.

MEETING AGENDA

26th September, IPS

Until next time, good DXing and good health. 73's John VK1NEN

AR

SPECIAL EDUCATION QSP

Brenda VK3KT has available Trail Examination Papers:

Theory, Novice, AOCP, Regulations.

Also past CW exams from DOC. There are:

10 exams at 5WPM

10 exams at 10WPM

Ten exams fill a C60 cassette tape. INTERESTED? Send a tape and state your requirements and Brenda will transcribe it onto your tape.

Have you any complaints or other comments about the amateur examinations?

Please make your grievances known to Brenda VK3KT, your Federal Education Officer. Brenda may be found each Thursday evening on the Education Net at 1130 UTC, 3.685 MHz ± or write QTHR.

FIVE-EIGHTH WAVE

Jennifer Warrington VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

For sometime now the Divisional Council have been concerned at the apparent gulf in communications between ourselves and our country members, including of course VK8. We have heard 'rumblings' from afar, mostly because they feel that we are not interested in what happens to them. I can assure you all that this is not the case, and we have been 'stirring the grey cells' in an attempt to come up with a solution.

For the past few years VK4 representatives at the Federal Convention have been telling us that their 'Clubs Convention', which is held just prior to the FC, has been a marvellous way of getting their clubs' opinions on all manner of topics, and making the clubs feel that they really are part of the whole division. The only problem, as far as our division was concerned, seemed to be money, however we now feel that we have even found a solution to this problem. Therefore, I am pleased to announce that, all being well, the VK5 Divisional Council will be hosting a Convention of Clubs affiliated to the VK5 Division on 13th, 14th and 15th April, 1984.

Half the travelling expenses, and accommodation for one member from each club will be met by the division, however if the club wishes to send more than one member at its own expense or the members wish to pay their own expenses we shall of course be delighted to see them. The venue will probably be the 'Parnanga Campsite' at O'Sullivans Beach, great for that early morning run, or dip; and very handy for the South Coast Radio Club, whose clubrooms are right next door! You will be hearing more about this shortly, but in the meantime start thinking about the sorts of things you would like to discuss, and keep the weekend of the 13th/15th April, 1984 free.

The South East Radio Group held another of its very successful conventions on the Queen's Birthday long weekend. Unfortunately I was unable to attend, but those who did are, I believe, already planning to go back next year. Congratulations to David VK5KK who brought the Trophy back for VK5, and to all those others who had a good time trying.

Merv Millar VK5MX, has for sometime seen the need for an encouragement award for homebrewers. Our September meeting is always the 'Display of Members Equipment' and although we receive one of the quarterly vouchers which John Moffat of ICS very generously donates (formerly known as the Kenwood Trophy) and prizes are also donated by the division, Merv still felt that something in the way of a Merit Certificate to encourage those who might feel less than competent, would be worthwhile. Needless to say, the council felt that Merv's offer was most generous, and was only too happy to accept — so come on all you homebrewers, 27th September isn't far away!

AR

VK2 MINI BULLETIN

Jeff Pages, VK2BYY
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

COUNCIL REPORT

Divisional Council met on the 15th July. Federal Councillor Stephen Pall VK2PS presented a report on a meeting between WIA reprsentatives, DOC and the Federation of Australian Commercial Television Stations, which resulted in the limited release of the 50 to 50.15 MHz segment as outlined in the insert in last month's AR.

Council requires information on Divisional Presidents and Secretaries prior to the war. Anyone who can assist should contact the Divisional Office. Peter Jeremy VK2PJ presented a report on the Queensland Radio Club Workshop, and this will be raised at the next Conference of Clubs. Council decided to install a logging recorder at Dural to record broadcasts for reference should any queries arise. Stephen Pall reported that a tenant had been found for the downstairs room at Amateur Radio House.

Council reminds all repeater groups to ensure that their repeaters comply with all the requirements under regulation 5.11 of the Handbook, particularly with regard to identification. Repeaters must only be operated from the site at which they are licensed. The practice of putting repeaters and beacons to air before the licence is processed does not enhance the image of the amateur service as a self-regulating group, and must cease.

DURAL

A four element triband beam and rotator has been installed at the Dural station for use during contest and WICEN activities. It is intended to operate the Divisional Station VK2WI during all of the Australian contests. During July the control unit of the Dural 2 metre repeater was replaced. The new controller, based on a Z80 microprocessor, now controls both the 2 metre and 70 centimetre repeaters, and an information sheet detailing the operation of these repeaters is available from the Divisional Office. Provision has been made in the hardware and software to allow additional repeaters to be added at a future time.

FISHER'S GHOST AMATEUR RADIO CLUB

The fisher's Ghost Amateur Radio Club has only recently been formed, and as the name implies, embraces the Campbelltown-Camden area. Nets are held on 80 metres each Friday at 1000 UTC on 3.580 MHz, and on 10 metres each Sunday at 1000 UTC on 28.520 MHz, both frequencies plus or minus QRM.

The monthly meetings are held at Bradbury Primary School, Campbelltown, on the fourth Wednesday of each month, commencing at 7.30 pm. An invitation is extended to anyone to attend the meetings as a visitor or intending member. Licensed Amateur Radio Operators may become Full Members, and all others may become Associates. For further information ring the President, Charlie VK2PMG on (046) 59 6388 or the Secretary, A J Harris VK2PFW on (046) 46 1476.

The Fisher's Ghost Amateur Radio Club is affiliated with the WIA NSW Division.

SOUTH WEST AMATEUR RADIO SOCIETY CONVENTION

The 31st SWARS convention will be held this year in Tumbarumba over the long weekend 1st and 2nd October. The venue will be the Tumbarumba Show Ground, a very nice setting for a convention of this type. A programme of events has been arranged and also bus and car trips to the many scenic spots in the Tumbarumba District.

On Saturday a conducted car trip will visit many of the closer scenic places including Paddy River Falls. On Sunday a bus tour to Khancoban has been organised.

Motel accommodation is very limited in Tumbarumba. Some hotel and on-site caravan accommodation is available, as are caravan and camping sites. For those who care to bring sleeping bags and blankets a Sports Pavillion is available with showers, etc. A deposit of $20 is required per room for accommodation bookings, which should be in by the 16th September. For information and bookings contact Mr J Clode, Ournie via Jingellic, NSW, 2642, or phone (060) 37 3134.

The programme of events is as follows:

Saturday:
10 AM — Registration and morning tea
10.30 AM — 10 m transmitter hunt
12-2 PM — Barbecue lunch
2 PM — Conducted car tour
4.30 PM — 80 m and 2 m transmitter hunts
5.30 PM — 2 m pedestrian hunt
7.30 PM — Dinner — $10 per head, under 12 years free
9 PM — Films, rag chew, etc.
Sunday:
9 AM — Registration and morning tea
10 AM — Bus tour
11.30 AM — 2 m talk-in
1 PM — Barbecue lunch
2 PM — 2 m scramble — all modes
3 PM — 2 m multi-transmitter hunt
3 PM — Return of bus trip
5 PM — Prize presentations. *Jeff VK2BYY*

VK4 WIA NOTES

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld, 4001

NORTH QUEENSLAND RADIO CONVENTION

Are you planning to visit North Queensland toward the end of September? If you are, you will be very welcome to join in the fun at the James Cook University over the weekend of the 23, 24 and 25th of September. Townsville have been staging these highly enjoyable and well attended conventions for some years and this one will be no exception.

An informal get-together at the James Cook University Club starts the convention on Friday evening. Out-of-towners can meet the locals. On Saturday, the activities really get underway. There are fox hunts, scrambles, lectures, ladies activities, demonstrations, discussions, trade displays, an auction, homebrew competition, trophies to be won. So it sounds like any other amateur convention, but up in Townsville there is a big difference. It is all conducted in an atmosphere of the famous North Queensland friendliness.

For further particulars phone: *Evelyn Bahr, VK4EQ, 79 1357, AH 79 4301; Roger Cordukes, VK4CD, 72 1944, AH 7 3334* or write to: *The Convention Committee, TARC, PO Box 964 Townsville, Qld, 4810.*

AMATEUR RADIO GOES TO SCHOOL

You may get to follow the example of Brisbane amateur Rob Green, VK4NBJ. Rob's young son, Bradley, was telling his teacher at St Peters Primary School, Rochedale about dad's amateur radio station. The teacher spoke to Bradley's mum, Margaret about it and the upshot was that during a free period recently, the class were able to watch a video-tape introducing amateur radio to these ten and eleven-year-old boys and girls. The video-tape was obtained from the Institute by Rob who saw this as a unique opportunity to inform these children that there is such a thing as amateur radio.

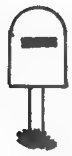
Most schools these days have video recorders and teachers are always on the lookout for interesting and informative activities for free periods. Maybe you can follow up on this idea, particularly in the year of World Communication. There is a big audience out there just waiting to be told that amateur radio exists.

AMATEUR ADVISORY COMMITTEE

A recent issue of QTC, our Queensland newsletter, inserted into all 4000 series postcoded ARs, told our members that they were the best operators in Australia. They had better be, because Queensland, it seems, has the only really active amateur advisory committee in Australia.

Do not think that here in the Sunshine State, we go on the air in fear and trepidation that Big Brother is listening. The members of the AAC are just a few ordinary amateurs who monitor our bands and firmly but politely, correct those of us who do not observe the regulations as laid down in the handbook. These amateurs are appointed to the committee by DOC and a DOC officer chairs the meetings which are held every two months. The AAC is not a WIA committee although several of the members are WIA members.

The Amateur Advisory Committee is a buffer between careless or thoughtless operators and officialdom. Here in Queensland, the AAC works, should not there be one in every State?



LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

PLEASE NOTE

Letters to the Editor should be short and to the point. They will be easier to read and will not require shortening or summarising.
Amateur Radio is produced under a very tight budget. Space for each item printed in the magazine is at a premium.

HEARTFELT THANKS

I have been requested by the members of the WICEN Region 3A and 4 groups, who participated in the communications exercise in conjunction with the James Hardie National Car Rally on 16 and 17 July 1983, to convey their heartfelt THANKS to all radio amateurs, who, in the true "Amateur Spirit", immediately cleared the 3.605 MHz spot when requested to do so.

Due to peculiar propagation problems the 80 m spot became the busiest frequency to cover the event and thus the co-operation of all concerned was, and is, greatly appreciated.

Thanks again gals and guys.

John Aarsse, VK4QA
WICEN REG 4 CO-ORDINATOR
Box 597, Toowong, Qld 4066

THE "ULTIMATE" VHF QTH!

I trust that you will find this letter regarding my 2 m experiences of sufficient interest to publish.

My location is one of those highly sought after elevated QTH's with all antennas looking out across the water and no obstructions in any direction to interfere with VHF operation. Perfect I thought — and so it was to begin with. Using my IC290A and my dual ⅝th in phase, vertical antenna, the latter mounted own 20 ft mast fixed to the ridge of the roof the house, I found that most of Melbourne and Geelong were within simplex range. In addition I could access ten VK3 repeaters and quite often VK5 and VK7 repeaters.

All went well until approx August 1982 when a pageing system with a 60 dB over S9 signal appeared in the 146.500 area. It was proved to be a 3rd order intermodulation product problem with my receiver and I learned to live with it. The situation today is different — on the 15th June 1983, between 0930-1030 EST I logged 76 different frequencies on which I had intermodulation problems — (four of these being on repeater output frequencies) — ranging in bandwidth from 5 kHz to 25 kHz. No doubt some of them were 4th and 5th order intermodulation products. However, it all but rendered 2 m useless and the thought of living in a valley became quite attrctive, particularly as other makes of transceivers showed no improvement over my own.

The problem has partly been overcome by downgrading my antenna system and 2 m is again of some use to me. To those of you who are thinking of a new QTH atop a hill and who "try out" its 2 m capabilities from the "mobile" or with a "hand held" beware of what may be there when you ultimately put that antenna up at a higher level.

To those who are contemplating such a move I refer you to AR of October 1982, where a very good article appears dealing with the problem and also to QST of May 1983, where another informative article is published. Have you perhaps blamed a "button pusher" for interference at some time when in fact the cause is entirely different?

This is not a letter of complaint just a statement of my experiences in that "perfect VHF location" that so many of us look for. Perhaps the manufacturers could apply themselves to the problems of "overload" and "intermodulation" so that a "good QTH" can be used effectively.

Believe me intermodulation is alive and well and living in VK3.

Stan Williams, VK3DSW
2 Gannet Street, Mt Eliza 3930

AN OPEN LETTER TO ALL RADIO AMATEURS

1983 is World Communications Year. It is also the year that the BOYS BRIGADE celebrates its 100th Birthday.

Founded on the 4th of October 1883 by William Alexander Smith the Boys Brigade was formed out of a group of youngsters who attended Sunday School. They were encouraged by their leader to participate in drill, gymnastics and team games, as well as to continue with their Christian studies.

From the small beginnings in Glasgow, Scotland the Boys Brigade quickly expanded, and spread throughout the British Isles and Commonwealth. The Boys Brigade inspired many other groups. The Girls Brigade was started in Ireland in 1893 with the scouts following some sixteen years later.

Her Majesty Queen Elizabeth the Second is Patron. Her patronage extends to all Boys Brigades in the following countries: *Great Britain, Ireland, Australia, New Zealand, Cook Islands, Nuie, Solomon Islands, Tuvalu, Vanuatu, Papua-New Guinea, Canada, Bermuda, Falkland Is, Bahamas, Honduras, Jamaica, Haiti, Antigua, Barbados, Guiana, British Virgin Is, Dominica, Grenada, St Kitts, Monserrat, Netherlands, Antilles, Trinidad, Hong Kong, Malaysia, Singapore, Sierra Leone, Ghana, Nigeria, Cameroons, Uganda, Malawi, Zambia, Zimbabwe and South Africa.*

I would like to propose that all amateurs, amateur groups or societies approach your local Boys Brigade and open up your station to the Boys Brigade for the first four days of October 1983.

During this period it would be hoped that stations try and operate at least three hours every day or a minimum of six hours on the 4th October.

Dates and Times of the event are suggested as: 1200 hrs Saturday 1st of October (midday local time) to 2400 hrs Tuesday 4th of October (midnight local time).

Stations will use the following frequencies ± 5 kHz for calling "CQ Boys Brigade" or "CQ BB 100".

On 10 metres	28.480 MHz
On 15 metres	21.180 MHz
On 20 metres	14.240 MHz
On 80 metres	3.620 MHz

During quiet periods of operating, stations should listen on the hour and the half hour for new contacts.

After initial contact all stations should QSY to other parts of the band to establish a full exchange of communication and avoid interference to other stations calling.

It is hoped this method of operation will enable a useful and economic use of the frequencies available and promote more contacts.

Normal modes of transmission to be used.

To all amateur radio groups I ask you to please get involved. Arrange a special club station and establish contact with your local Boys Brigade. They are making approaches to Amateur Radio Societies and groups, you could assist much to promote Boys Brigade by making a station available to them on the 1st, 2nd, 3rd and 4th of October, this year 1983.

It is hoped that this will be the first of many an informal gathering of members of the Boys Brigade each year. Not only will it benefit the Boys Brigade and amateur radio it will assist to strengthen the ties of the Commonwealth and encourage a greater understanding amongst all people that there is Peace and Goodwill available to all in this world.

I invite you to share with me any information about your proposed activities, as well as the actual events that happen before and after this period of celebration for the first 100 years of the BOYS BRIGADE.

I wish you much success.

Yours faithfully,
Frank May (VK2PIO)
Box 33,
Rosebery, NSW, 2018
AR

COPYRIGHT

I refer to my previous letter of 5th June, 1983 wherein I expressed my feelings regarding the unfortunate copyrighting of the article 'To Heard and Back' by Dave Shaw, VK3DHF/VK0HI.

Could you please inform both your other readers as well as myself as to just how many applications you have received from other papers/magazines for use of this article? Also whether or not such applications have included such emminent publications as QST, CQ, 73, Radio Communications, Ham Radio or perhaps even Break In, or World Radio. Have any of the major DX newsheets such as The DX Bulletin also been included in such applications as may have been received?

It would also be of great interest to learn whether either Dave VK3DHF or Al Fischer K8CW/VK0CW have provided articles to any of the amateur radio magazines other than your publications.

Ian J Hunt, VK5QX
8 Dexter Drive, Salisbury East, SA

EDITORS NOTE

Two requests were received from the Japan DX Family Foundation and from Veron DXpress. Both requests were acceded to. No other requests have been received. The Editor of Amateur Radio Magazine has knowledge only of material submitted to Amateur Radio Magazine.

Editor
AR

KINKY HINTS??

I have just been reading some amateur radio magazines from overseas and, in comparison, I feel our own Wireless Institute publication is as good, if not better, than most of them.

However, I was interested in the 'Hint's and Kink's' section published in 'QST', and I feel a page could be set aside in our own magazine, for the experimenters or innovators within the Australian Amateur Fraternity. We do, as a nation, have a reputation of being very inventive and innovative, due to the distance we are from the major markets of the world. However, we have to our credit the invention of the 'Stump Jump Plough', also the first utility car and, believe it or not, the Hula Hoop!!

It irks me to think that we could have been the first in many aspects of amateur radio if the inventors among us had had a public forum, to air their views. Let's face it, not everybody can sit down and write a long technical article, but most of us would be able to draw a rough diagram, with a short covering note, to explain the principle of the devices, or more importantly perhaps, the application of viable, cheap, easy to get at material for all aspects of our hobby. If only one per cent contributed an article per year, there would be enough material to keep a column going to benefit all, with perhaps the incentive of a yearly prize,

donated by one of the commercial advertisers, for the best idea published.

Being flippant, the column could be called 'Kinky Hints'.

Yours sincerely
Jim E Joyce, VK3YJ
44 Wren St, Altona, 3018

What do others think? — Ed. **AR**

EIGHTY METRE NETS

I would suggest that a list of all Australian 80 metre nets should be published in this magazine. This would provide two benefits. 1. Those wishing to join a particular net would know when and where to find it. 2. Those wishing to make a sked with a friend would know when and where to avoid a net.

It is obvious that nets are growing more popular and are increasing. Such a list would also help those wishing to establish a new net. We all realise that no one has a right to monopolise any one frequency (except for WICEN), but a properly run net enables a group of operators to use a single frequency thus helping to reduce congestion on the band.

As a starter, I would like to nominate the Tasmanian Devil Net which operates every Tuesday night from 1000 UTC on or about 3.590 MHz. You might also list WIA weekly broadcasts.

Your sincerely
Bob Jackson, VK7NBF
Falmouth House, Falmouth, 7215

Any Volunteers? — Ed. **AR**

WHAT PRICE DX?

I would like to add my comments to those made by previous contributors regarding the cost of QSL confirmations.

For many years now I have sent the more usual QSLs by the Bureau, and the rarer ones direct, in the ratio of approximately 50/50. Since by now every new country I work is relatively rare most of my cards go direct. I always inclose two IRCs (or a green stamp) and, most importantly, a self addressed airmail envelope. SAEs appear to be the single most important factor in obtaining a reasonable rate of return. Only a few cards had to be sent more than once. Among the ten confirmations outstanding there are only four to whom I sent my card direct, and they are all still fairly recent.

As a result I have at present 206 countries confirmed out of a total of 216 worked, a success rate of ninety five per cent.

In today's money two IRC's plus air mail comes to two dollars. Assuming that fifty per cent of my total were sent direct the average cost of a confirmation, at today's postage rates, runs therefore to $1.00.

$200.00, over more than ten years, does not seem such an enormous sum to spend on one's hobby, considering the money spent by most amateurs for equipment, whether home brew or commercial.

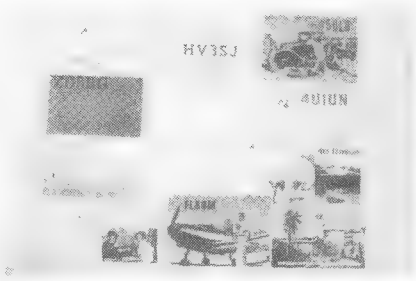
Best regards and 73s
George Cranby, VK3GI
PO Box 22, Woodend, 3442

AR

****HELP****
INTRUDER WATCH

Please help INTRUDER WATCH by reporting all intruders.

For QSL Cards
Phone
(03) 527 7711



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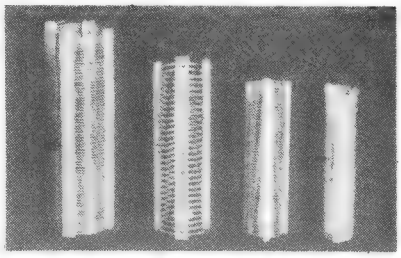

No	Diam	Turns per Inch	Length	B & W Equiv	Price
1-08	½"	8	3"	No 3002	$1.60
1-16	½"	16	3"	No 3003	$1.60
2-08	⅝"	8	3"	No 3006	$1.90
2-16	⅝"	16	3"	No 3007	$1.90
3-08	¾"	8	3"	No 3010	$2.30
3-16	¾"	16	3"	No 3011	$2.30
4-08	1"	8	3"	No 3014	$2.60
4-16	1"	16	3"	No 3015	$2.60
5-08	1¼"	8	4"	No 3018	$2.90
5-16	1¼"	16	4"	No 3019	$2.90
8-10	2"	10	4"	No 3907	$4.20
8-10/7	2"	10	7"	No 3907	$7.20

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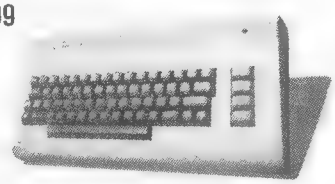
VIC 20 computer — 5K RAM, 8 colours, hi-res 176*200 pixel graphics, 4 voice sound generator . . . $299

Commodore 64 computer — 64K RAM, 16 colours, hi-res 320*200 pixel graphics, sprites, sound synthesizer . . . $699



Both computers feature 20K BASIC & operating system, RS 232, parallel user port — disc drives, printers, joysticks, paddles, light pens, games, utilities etc available.

Versions also available for PET/CBM 3000, 4000 and 8000 series (includes SSTV send) — POA.

HIGH TECHNOLOGY COMPUTER SYSTEMS PTY LTD

87 Swan Street, Richmond, Vic 3121 ph (03) 429 1966 ask for Mike VK3BHM or Joel VK3ZKE

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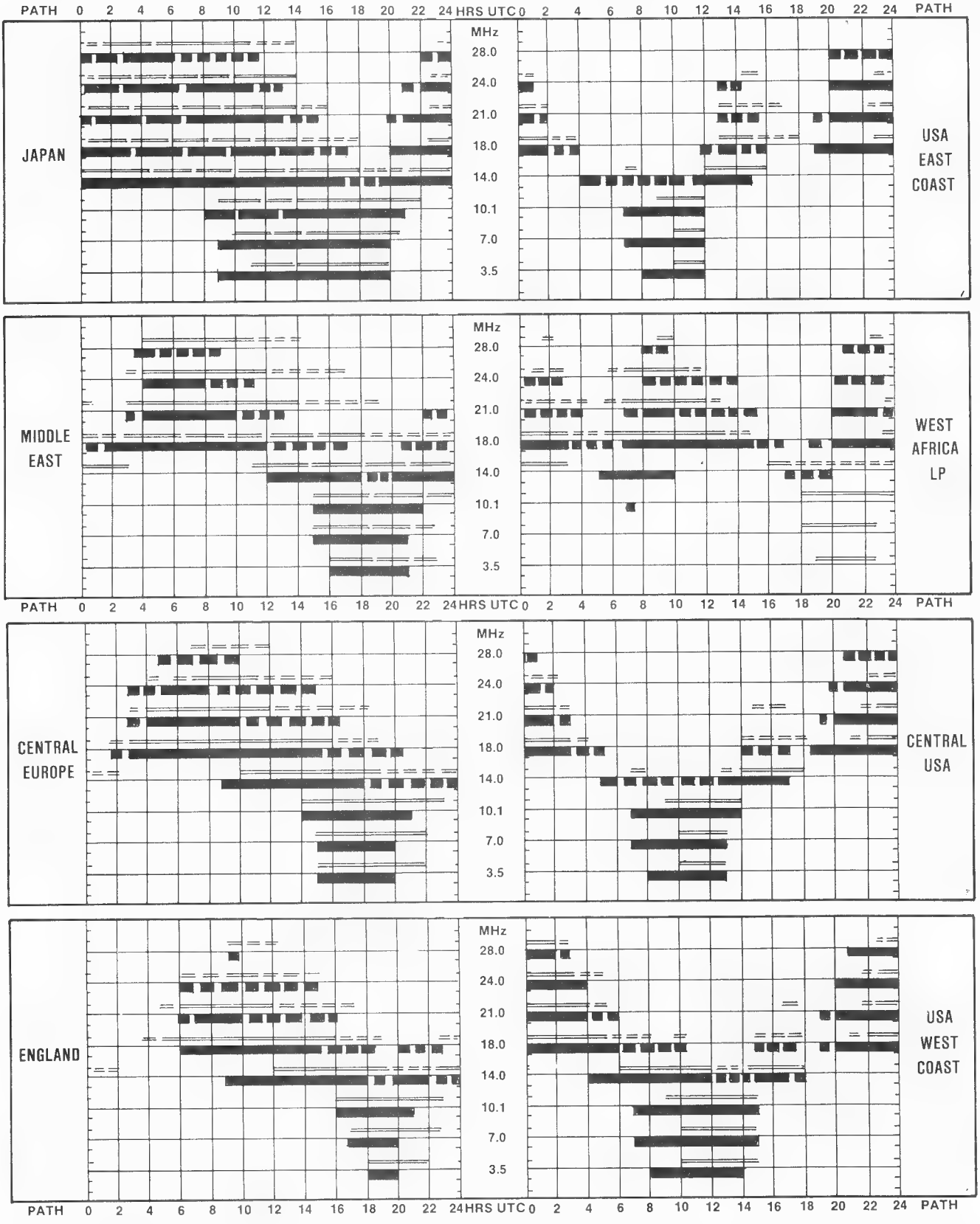
Len Poynter VK3BYE

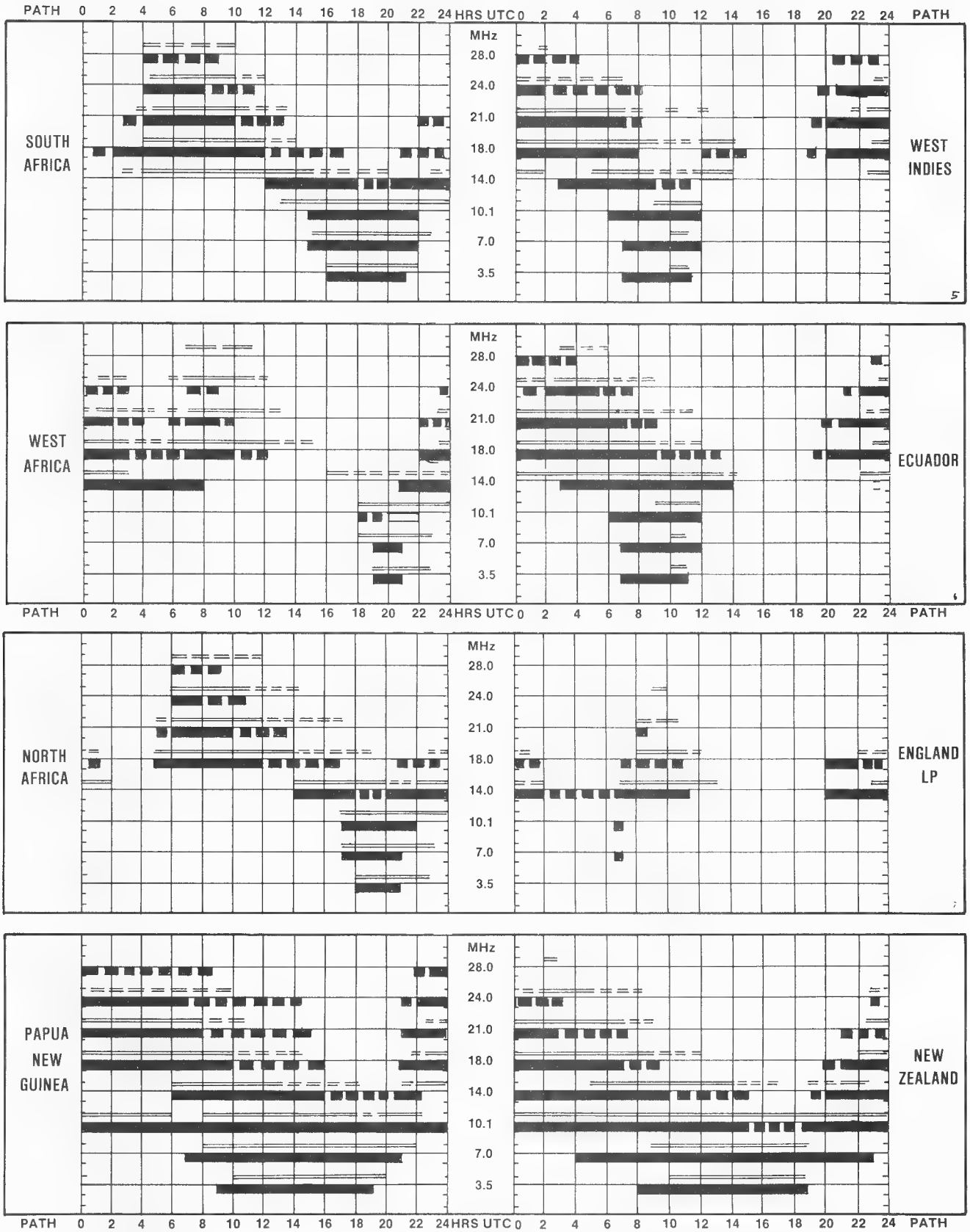


LEGEND

From West Australia

From East Australia

Better than 50% of the month, but not every day



Predictions courtesy Department of Science and Environment IPS Sydney. All times in UTC.

Less than 50% of the month

PATHS — Unless otherwise indicated (ie LP = Long Path) all paths are Short Path.

Obituaries

PERCY SARA VK2QV

On Tuesday, 21st June, 1983 "VK2 QUEEN VICTOR" left his earthly life and became a silent key.

Percy Sara was born in Sydney in 1920 and was educated at Sydney Grammar School. During the war he volunteered for service and was sent to England where he later joined 460 Squadron, (Lancaster Bombers). Whilst training at Church Broughton he met Betty, a WAF who was destined to become his wife.

Unfortunately, on a misson over Germany as tail-gunner in a Lancaster, Percy's aircraft was shot down and he, and the rest of the crew parachuted to "safety" (thus also qualifying for memberhip in the exclusive "caterpillar" club). A few days of freedom followed. However he was finally captured and handed over to the Gestapo for interrogation and ultimate processing to Stalag Luft 3. Two years as a POW did little for the health of any of the prisoners and eventually was responsible for Perce becoming TPI.

Perce and Betty were married after his release in 1945. They returned to Australia and had their first child Geoffrey in 1946. As an ambulance Super-intendant, Percy transferred from Coolah to Bellingen as it was here in 1950 that the famous Sara Quads were born. Subsequently Percy, who by now had the callsign VK2QV, was one of the few amateurs able to decorate his QSL card with quads of a different kind.

The family left Bellingen in 1954 and returned to Sydney but it was Perce's wish to retire to the North Coast and they settled in Urunga in October 1980.

Percy immediately involved himself in community activities and took an active part in the running of the Coffs Harbour and District Amateur Radio Club where he was Treasurer until his passing.

Retirement did not see him vegetate — indeed his interests in amateur radio expanded to include RTTY and computers. It is an example to us all that he had returned to "school" to study computer programming to "find out what it was all about". He attended "class" on the Monday night where he used the knowledge he had already acquired to help others who were having difficulty. Percy passed away quietly in his sleep on Tuesday morning.

Our sympathy is extended to Betty and their family at the passing of "nature's gentleman" — he will be sadly missed by all his amateur mates.

Rick Fletcher, VK2BKV
AR

W B (BILL) JOHNSON VK5AWJ

Bill became a silent key on 25th June, 1983. He came from New Zealand thirty years ago, where he had held the callsigns ZL4HT and ZL2VO, and became VK5FZ for a time and then his licence lapsed until 1978 when he became VK5AWJ.

This callsign became familiar on HF and VHF — you could hear it most mornings "hand held, walking the dog in Vale Park" or else booming out on twenty metres, amplifier, monobander and all.

More recently Bill was seen and heard on Amateur Television, but only in the daytime, although his operating from home was restricted for the past year due to him being hospitalised in June 1982, but he managed to get home for a few precious hours, several days each week.

These were the times he loved best — talking on air with his friends!

Most knew that it was only a matter of time, but his cheery voice and manner belied his terminal illness. In fact the medical and nursing staff at the hospital admired his courage in his day to day living and agreed that his fascination with amateur radio was a major factor in his ability to cope with his ever increasing medical problems.

Bill continued to operate on two metres from hospital, and, just the day before he died, was talking on the repeater arranging to send a cheerful message to friends in New Zealand.

For Bill the end was peaceful and dignified and although he will be missed by his many friends it is comforting to realise that, at last, his troubles are over.

Chris, VK5PN
AR

HARRY ROBINSON VK5HN

Harry VK5HN passed away suddenly on 12th May, 1983.

He was employed by the South Australian Fire Brigade in 1923 and was attached to the St John Ambulance Brigade as a driver and attendant. (In those days the ambulance was operated by the fire brigade.)

Harry joined the Brigade a few years before a fire aboard the ship "City of Singapore". This fire caused an explosion which resulted in three of Harry's firemen friends being killed.

It is said that if it were not for Harry's expert medical attention to others at the fire scene, the death toll would have been much higher.

Harry joined the ranks of amateur radio in the late '30s and was working at the art less than seven hours before his death.

He took great pride in his "radio career" and was always ready and willing to assist the "youngsters" of the amateur fraternity.

He will be sadly missed.

R Gill, VK5NVM
AR

BERT BEHENNA VK5BB

Bert VK5BB passed away on 8th July after a long illness. He was 65.

Bert was licensed about 1947 and was active on the bands until two years ago.

He had been an RAAF pilot and also worked at the Port Pirie Radio Station, 5PI, for many years.

Sympathies are extended to his wife and six surviving children.

Jenny Warrington, VK5ANW
AR

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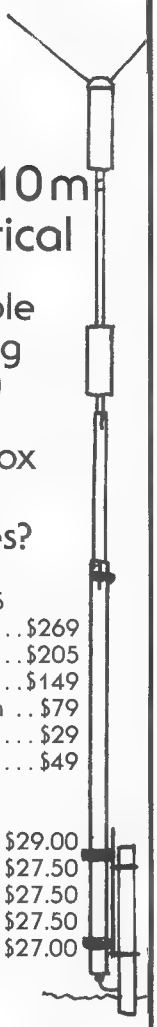

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ATN Antennas	63
Audio Telex Communications Pty Ltd	4
Bail Electronic Services	7
Chirnside Electronics Pty Ltd	62
CW Electronics	6
Dick Smith Electronics	2 & 3
Eastern Communication Centre	10
Emtronics	IFC
GFS Electronic Imports	32 & 33
Harad	53
High Technology Computer Systems Pty Ltd	59
Hy-Tech Distributors	47
Ian J Truscott Electronics	54
ICOM Australia Pty Ltd	BC
K Brucesmith	6
Magpubs	19 & 44
Novice Licence — VK2	54
Optilux	6
Parameters Pty Ltd	IBC
Quartz Crystal Laboratories	63
Radio World Pty Ltd	5
Stewart Electronic Components Pty Ltd	8
Traeger Distributors (NSW) Pty Ltd	8
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Vains Antenna Services Pty Ltd	6
Watchman Electronics	8
William Willis & Co Pty Ltd	59
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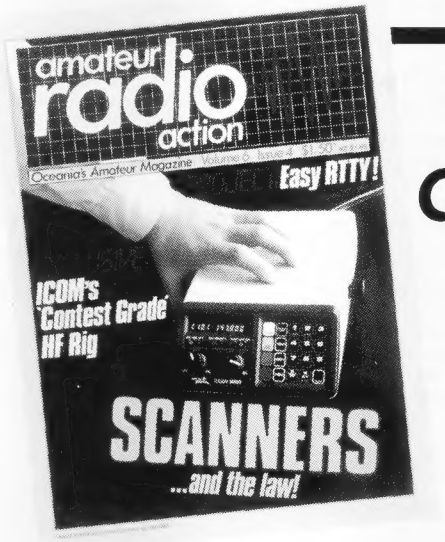

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